ORDER NO. VM0504025CE
B17

Service Manual

DVD Video Camcorder

VDR-M95PP / VDR-M75PP / VDR-M55PP / VDR-M53PP

Colours
(S).....Silver Type

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1. Safety Precautions

GENERAL GUIDELINES

1. IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essentialthat these critical parts should be replaced with

manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

2. **An Isolation Transformer should always be used during the servicing of AC Adaptor whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personalinjury from electrical shocks. It will also protect AC Adaptor from being damaged by accidental shorting that may occur during servicing.**
3. **When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.**
4. **After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.**
5. **After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.**

LEAKAGE CURRENT COLD CHECK

1. **Unplug the AC cord and connect a jumper between the two prongs on the plug.**
2. **Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to thechassis, the reading should be between 1 M and 5.2 M . When the exposed metal does not have a return path to the chassis, the reading must be infinity.**

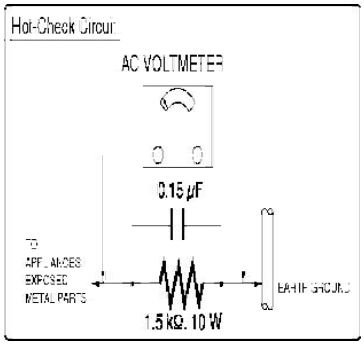
LEAKAGE CURRENT HOT CHECK
(See Figure 1.)

1. **Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.**
2. **Connect a 1.5 k , 10 W resistor, in parallel with a 0.15 F capacitor, between each exposed metallic part on the set and a good earth ground, as shown in Figure 1.**
3. **Use an AC voltmeter, with 1 k /V or more sensitivity, to measure the potential across the resistor.**
4. **Check each exposed metallic part, and measure the voltage at each point.**
5. **Reverse the AC plug in the AC outlet and repeat each of the above**

measurements.

6. The potential at any point should not exceed 0.75 V RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 mA. In case a measurement is outside of thelimits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

Figure. 1



2. Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive (ES) Device

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistorsand semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap,which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical

charges sufficient to damage ES devices.

6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparableconductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION :
   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD)sufficient to damage an ES device).

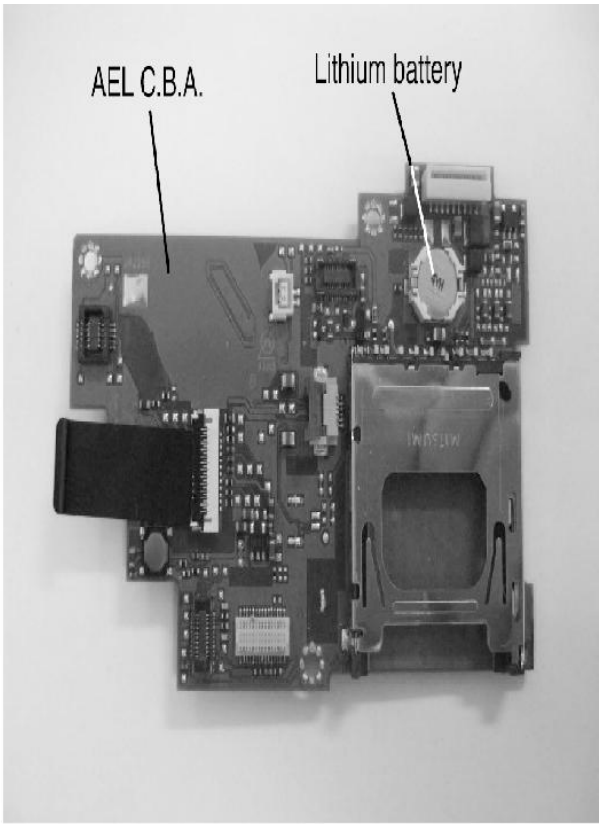
3. About Lead Free Solder (PbF)

Distinction of PbF PCB:

PCBs manufactured using lead-free solder will have a PbF printing on the PCB.
Please refer to figures.

4. How to Replace the Lithium Battery

Remove the AEL C.B.A. (Refer to " 8. Disassembly and Reassembly.")
Unsolder the Lithium Battery "FS11091" and then replace the new one.



NOTE:

This Lithium battery is a critical component. (Type No.: FS11091 Manufactured by Panasonic.)
It must never be subjected to excessive heat or discharge.
It must therefore only be fitted in equipment designed specifically for its use.
Replacement batteries must be of the same type and manufacture.
They must be fitted in the same manner and location as the original battery, with the correct polarity contacts observed.
Do not attempt to re-charge the old battery or re-use it for any other purpose.
It should be disposed of in waste products destined for burial rather than incineration.

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the equipment manufacturer.
Discard used batteries according to manufacturer's instructions.

PRECAUTION

Le fait de remplacer incorrectement la pile peut présenter des risques d'explosion.
Remplacer la pile uniquement par une pile identique ou de type équivalent recommandée par le fabricant. Se débarrasser des piles usagées conformément aux instructions du fabricant.

VORSICHT

Bei einer falsch eingesetzten Batterie besteht Explosionsgefahr. Nur mit einer vom Hersteller empfohlenen Batterie vom gleichen Typ ersetzen.
Verbrauchte Batterien beim Fachhändler oder einer Sammelstelle für Sonderstoffe ablefern.

VARNING

Explosionsfara vid felaktigt battenbyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparatt llverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

ADVARSEL!

Lithiumbatteri-Eksplosionsfare ved fejlagtig handtering.
Udskiftning ma kun ske med batteri af samme fabrikat og type.
Lever det brugte batteri tilbage til leverandøren.

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

5. How to Recycle the Lithium Battery

U.S.A. CONSUMERS: ATTENTION:

A lithium perchlorymer battery that is recyclable powers the product you have purchased. Please call 1-800-8-BATTERY for information on how to recycle this battery.

6. General Description

6.1. Overview

6.1.1. Servicing method

Refer to the following table and perform the designated, appropriate servicing.

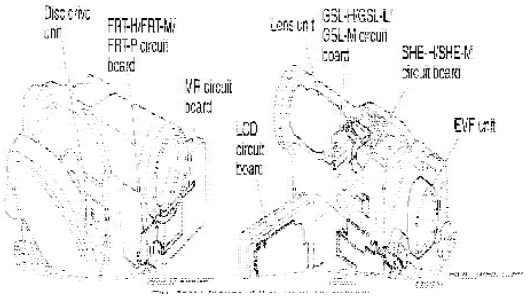
Do not perform any servicing other than that described in this manual.

Information:

The suffixes of circuit board names – "-H", "-M", "-L" and "-P" – show the models in which the circuit boards are used. "-H" is for VDR-M95, "-M" for VDR-M75, "-L" and "-P" both for VDR-M50/M55.

Parts Name	Servicing method
Disc drive unit	Unit replacement. (When incorporates the DEV and HDL5 circuit boards.)
Lens unit	Unit replacement.
EVF unit	Unit replacement.
LCD circuit board	Unit replacement.
MR circuit board	Unit replacement.
AEL circuit board	Component replacement.
AVJ-H/AVJ-M/AVJ-P circuit board	Unit replacement.
DRF-H/DRF-M/DRF-P circuit board*1	Unit replacement.
FRT-H/FRT-M/FRT-P circuit board	Unit replacement.
GSL-H/GSL-L/GSL-M circuit board	Unit replacement.
MAN circuit board	Unit replacement.
SHE-H/SHE-M circuit board	Unit replacement.

*1 Film type board that connects MAN circuit board and disc drive unit.



6.2. Specifications

Item			Specifications
CCD Image Sensor		VDR-M95	1/3.6-inch interlaced
		VDR-M75	1/4.5-inch interlaced
		VDR-M55/M53	1/6-inch interlaced
	Total number of pixels	VDR-M95	Approx. 2,120,000
		VDR-M75	Approx. 1,330,000
		VDR-M55/M53	Approx. 680,000
	Number of effective pixels	VDR-M95	Video: Approx. 1,230,000 Photo: Approx. 1,920,000
		VDR-M75	Video: Approx. 690,000 Photo: Approx. 1,100,000
		VDR-M55/M53	Video: Approx. 340,000 Photo: Approx. 340,000
Lens		VDR-M95	F1.8 - 2.2, f = 4.5 - 45 mm
		VDR-M75	F1.8 - 2.3, f = 3.2 - 32 mm
		VDR-M55/M53	F1.6 - 2.3, f = 2.1 - 50.4 mm
	Filter diameter	VDR-M95	1-5/16" (34 mm)
		VDR-M75	1-1/4" (30.5 mm)
		VDR-M55/M53	1-5/16" (34 mm)
Focus			Auto/Manual
Zoom		VDR-M95	Optical 10×, 240× with digital zoom added (400× for photo)
		VDR-M75	
		VDR-M55/M53	Optical 24×, 800× with digital zoom added (800× for photo)
Required minimum illumination		VDR-M95	2= lx (1 lx in Low light mode)
		VDR-M75	15 lx (1 lx in Low light mode)
		VDR-M55/M53	12 lx (1 lx in Low light mode)
Viewfinder			0.2-inch color (equivalent to approx. 200,000 pixels)
LCD monitor			2.5-inch color TFT (approx. 123,000 pixels)
Image Stabilizer			Electronic Type
Shutter speed			1/4 - 1/4000 second (video)
Self-timer recording			Photo recording only
External microphone jack			Ø 3.5 mm stereo minijack (a plug-in power type microphone cannot be used)
Recording mode			Video with audio (DVD-RAM, DVD-R) Photo (DVD-RAM, SD memory card)

Item			Specifications
Recording format	DVD-RAM		Video: Conforming to DVD video recording format Audio: Dolby Digital Photo: Simultaneous recording, conforming to JPEG format. (VDR-M85: 1600 × 1200 pixels, VDR-M75: 1280 × 960 pixels, VDR-M55/M53: 640 × 480 pixels)and DVD video recording format (720 × 480 pixels). [JPEG of external input: 640 × 480 pixels]
	DVD-R		Video: Conforming to DVD video format Audio: Dolby Digital
	Card		Photo: Conforming to JPEG. (VDR-M85: 1600 × 1200 pixels, VDR-M75: 1280 × 960 pixels, VDR-M55/M53: 640 × 480 pixels) format [External input: 640 × 480 pixels]
Audio playback format			Dolby Digital, MPEG Audio layer 2, Linear PCM (LPCM)
Recording media			8 cm DVD-RAM (conforming to DVD-RAM Ver. 2.1) 8 cm DVD-R (conforming to DVD-R for General Ver. 2.0) SD memory card
Jacks			Video/audio input/output × 1 External microphone input × 1 PC connection terminal (connected to PC USB port) × 1 [PC connection terminal is not provided with VDR-M53]
Battery system			Lithium ion
Power consumption (when recording with LCD monitor off)		VDR-M85	Approx. 4.4 W (DVD-RAM used, FINE mode)
		VDR-M75	Approx. 3.8 W (DVD-RAM used, FINE mode)
		VDR-M55/M53	Approx. 3.2 W (DVD-RAM used, FINE mode)
Dimensions (W × H × D, excluding projections)		VDR-M85	Approx. 51 × 90 × 137 mm
		VDR-M75	Approx. 51 × 86 × 128 mm
		VDR-M55/M53	Approx. 51 × 89 × 135 mm
Operating temperature/humidity			32 - 104°F (0 - 40°C), less than 80% 32 - 86°F (0 - 30°C) when connected to PC
Storage temperature			-4 - 104°F (-20 - 60°C)
Weight (without battery and disc)		VDR-M85	Approx. 490 g
		VDR-M75	Approx. 430 g

Specifications of prepacked AC Adapter/Charger VSK0677

Power supply	100 - 240 V AC, 50/60 Hz
Input capacity	26 VA (at 100 V)
DC output (max.)	7.9 V, 1.4 A
Charge output	8.4 V, 0.65A
Weight	105 g
External dimensions (W x H x D)	61 × 32 × 91 mm
Ambient temperature for operation	32 - 104°F (5 - 35°C)
Allowable relative humidity	40 - 80%

6.3. Compatibility of Recorded Discs

(1) DVD-RAM

A DVD-RAM recorded or edited on VDR-M95/M75/M55/M53 can also be recorded, edited and played *1 on other Panasonic DVD video camera/recorders.

Similarly, A DVD-RAM recorded or edited on other Panasonic DVD video camera/recorders can be recorded, edited and played *1 on VDR-M95/M75/M55/M53.

*1: If disc protect is set, it must be released in order to record or edit on the disc.

(2) DVD-R

A DVD-R recorded on VDR-M95/M75/M55/M53 can be played using other Panasonic DVD video camera/recorders even if it is not finalized.

However, do not use other Panasonic DVD video camera/recorders to record or finalize a DVD-R

6.4. List of Abbreviations and Terms for DVD Video Camera/Recorders

Index	Abbreviation/Term	Explanation
A	AC3	See Dolby AC3.
C	CPRM	Content Protection for Recordable Media: Copyright protection function that is suitable for online distribution of music.
	CSP IC	Chip Scale Package IC or Chip Size Package IC: This IC was made compact by arranging pins under the package.
D	DCF	Design rule for Camera File system standard: This camera file system standard
	Dolby AC3	Audio coding format developed by Dolby Laboratories in U.S. also simply referred as AC3 format: Supports 5-channel full-range sound and one channel for sub-woofer sound playback.
	Dolby Digital	See Dolby AC3.
	DPOF	Digital Print Order Format: DPOF allows user to record print information along with photos on storage media to facilitate printing of photos.
	DVD	Digital Versatile Disc: A huge amount of digital data for video (movie) and audio can be recorded on this disc whose size is the same as CD.
	DVD-Audio	One type of DVD standard disc, on which high-quality audio can be recorded
	DVD-R	One type of DVD standard disc, to which writing once is possible (recordable type)
	DVD-RAM	One type of DVD standard disc, to which writing up to 100,000 times is possible
	DVD-ROM	One type of DVD standard disc, to which data for computer can be recorded
	DVD-RW	One type of DVD standard disc, to which writing up to 1000 times is possible
	DVD-Video	One type of DVD standard disc, on which high-quality video and audio can be recorded
	DVD Video Format	Video recording/playback standard that applies to DVD-Video, DVD-R and DVD-RW
	DVD Video Recording Format	Video recording/playback standard that applies to DVD-RAM and DVD-RW: This allows versatile editing functions, differing from the DVD Video Format.
	DVD-VR Format	See DVD Video Recording Format.
E	Exif	Exchangeable image file format. File format used for recording photos on digital cameras.
F	FireWire	See IEEE1394.
	TNR	Frame Noise Reducer: This function or circuit automatically recognizes noise that randomly occurs between frames and removes it.
I	IEEE1394	Also referred to as FireWire or i.LINK: Standard for serial interface that connects PC and peripheral devices
	Interlaced CCD	This CCD scans one image twice (scans roughly once and interpolates between first scanning lines the second time) and interlaces the images obtained by scanning

Index	Abbreviation/Term	Explanation
M	MPEG Audio Layer 2	One of three audio compression standards (layers 1-3) defined by MPEG
	MultiMediaCard	Also referred to as MMC. Compact memory card, 32 mm long × 24 mm wide × 1.4 mm thick
	SCSI	Small Computer System Interface: A standard for connecting computer and peripheral devices. The number, First, Ultra, Wide, etc., prefixed or suffixed to SCSI indicates the data transfer rate and connector specifications.
S	SDMI	Secure Digital Music Initiative: This conference was established by hardware makers, the Recording Industry Association of America (RIAA) and music industry companies, to protect copyrights of musical compositions.
	SD Memory Card	Formally named Secure Digital Memory Card. This compact memory card, 32 mm long × 24 mm wide × 2.1 mm thick, is equipped with an advanced copyright protection function.
	SecureMMC	See Secure MultiMediaCard.
	Secure MultiMediaCard	Also referred to as SecureMMC. This compact memory card has multimedia card specifications, to which an advanced copyright protection function is added.
	Software Disc Protect	This function writes the protect information to DVD-RAM disc to prevent accidental erasure. Software Disc Protect is included in DVD-RAM disc specifications defined by DVD Forum.
	STN LCD	Super-Twisted Nematic Liquid Crystal Display: This type of color LCD is inferior to TFT LCD in coloring, view angle, etc.
T	TFT LCD	Thin Film Transistor Liquid Crystal Display: This type of color LCD features clear display, high contrast, wide view angle, etc.
U	UDF	Universal Disc Format, which is a file format of recordable disc defined by OSTA. The revision 2.01 UDF is used on DVD video camera/recorder.
	USB	Universal Serial Bus: Standard of serial interface that connects PC and peripheral devices. Two versions - USB1.1 and USB2.0, with different data transfer rates - exist at present.
V	VBR	Stands for Variable Bit Rate: This format of coding audio and video varies the amount of data depending on the subject image.

7. Name of Parts

Although the external appearances of VDR-M95,M75,M55 and M53 are different, the method of operating both models is same.VDR-M95 illustrations are used in this manual.

8. Troubleshooting

8.1. Procedure for Troubleshooting

Perform troubleshooting in the order shown in Fig. 8-1-1.

Note

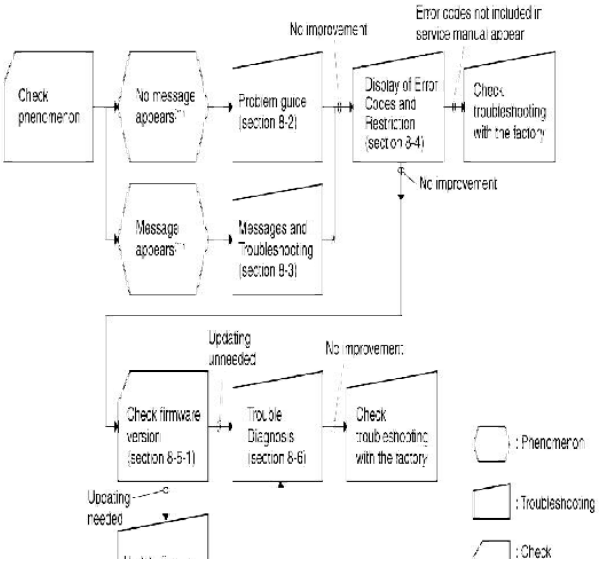
1) Before troubleshooting or servicing, be sure to obtain customer approval for the following:

a) The recorded contents on disc may be lost depending on the details and situation of fault (defect).

b) The date/time and various settings, including video recording mode, designated by customer after purchase, may be reset to the defaults before purchase (factory settings).

2) Perform "8-8-2 System reset procedure" after repair is completed. Note that system reset will erase all error codes that will be necessary for troubleshooting.

3) Take notes of settings on received product in the Remarks and Memo columns, referring to "Table 8-5-1 List of items to be reset". These notes will be necessary not only for reset, but for checking any defects that occur under the particular setting conditions.



8.2. Problem Guide

Check the following before judging that this DVD video camera/recorder is faulty.

Symptom	Cause and Correction
Power supplies	
Battery cannot be charged.	Is the DC power cord connected to AC adapter/charger? Unplug it. If the DC power cord is connected, the AC adapter/charger will not enter the charge status.
	Is the battery abnormally hot? Remove the battery from AC adapter/charger, leave it as is until it cools down, and then charge it again.
	Is the ambient temperature is too low or high? Always charge the battery at 10 - 30°C.
	Has the battery been unused for a long time? Remove the battery from AC adapter/charger, and then reattach it. If the battery is still not charged, it may be dead. Purchase a new one. * If the battery does not charge after you try the above four procedures, it may be dead. Purchase a new battery.
Battery weakens fast.	Are you using the DVD video camera/recorder where the temperature is low? A fully charged battery may be discharged sooner than usual at low temperatures. Keep extra batteries on hand.
	Battery may be dead. Replace with a new one. The performance of battery will deteriorate if it is used for an extended period of time or frequently.
The CHARGE indicator on AC adapter/charger is blinking.	The battery may be overdischarged. Continue charging. The CHARGE indicator will change to a steady light, and the battery will be charged normally.
	Is the ambient temperature is too low or high? Always charge the battery at 10 - 30°C.
Power turns off immediately after being turned on.	Is battery charged? Charge it.
When power is turned on, the LCD screen will turn on and off.	
Power goes off unexpectedly.	Is Power Save specified "On"? The specifications state that the powered DVD video camera/recorder

Symptom	Cause and Correction
During recording	
Pressing the REC or PHOTO button will not start recording.	Is disc protect engaged? Release the disc protect.
	Is the erase prevention switch on SD memory card set to the lock position? Release the lock of erase prevention switch.
	Is input image copy-guarded? The specifications state that the DVD video camera/recorder cannot record a copy-guarded image.
Recording starts but stops immediately.	Is there any dirt, fingerprint or scratch on the disc? Refer to "8-4-4 Cleaning disc and optical pickup" and clean the disc. If no recovery is made, replace the disc.
	Is some other AV device directly connected to the AV input/output jack of the DVD video camera/recorder? If the AV device is connected via several other devices, such as AV selector, the video signal may not be transmitted correctly. In such a case, reduce the number of devices through which the video signal is transmitted, or connect AV device directly.
	Are you attempting to record image from video game or PC? Depending on video game or PC, image cannot be recorded on the DVD video camera/recorder.
LCD screen is hard to see.	Has brightness of LCD screen been adjusted? Stop recording and adjust the brightness.
	Is the DVD video camera/recorder being used outdoors? Use the viewfinder. When using LCD monitor, adjust angle so that LCD screen is not exposed to direct sunlight.
Unevenness appears on LCD monitor screen	Did you press the LCD monitor or the area around it? If the LCD monitor is pressed, some unevenness will occur. Release your hand and leave the LCD monitor for a while. Normal display will be restored.
Black dots or red, blue or green dots always lit appear on LCD screen or in Viewfinder.	The panels used for LCD monitor and viewfinder of the DVD video camera/recorder are produced using highly precise technology. However, 0.01% or less of total pixels may not light (black dots) or may remain lit (red, blue, green dots). (The effective amount of pixels on LCD panel is 99.99% or more.) This shows the limitations of the current technology, and does not indicate a fault that will

Symptom	Cause and Correction
During playback	
Recognition of disc is not complete.	Is there any dirt, fingerprint or scratch on the disc? Refer to "8-4-4 Cleaning disc and optical pickup" and clean the disc.
Pressing the playback button will not start playback.	Was the image recorded on a device other than this DVD video camera/recorder? Playback of image recorded on devices other than this DVD video camera/recorder may be impossible.
	Has scene been edited on a device other than this DVD video camera/recorder? If a scene that was recorded on this DVD video camera/recorder is edited on a device other than this DVD video camera/recorder, playback may not be possible on this DVD video camera/recorder.
No playback image appears on TV screen.	Is the DVD video camera/recorder connected to TV correctly? Check the connections.
	Is TV input selector set correctly? If the TV has multiple video input jacks, check to see whether the correct input jack was selected. If the DVD video camera/recorder is connected to VCR, set the input selector of VCR to "external input (LINE)".
Playback picture is momentarily interrupted.	Is there any dirt, fingerprint or scratch on the disc? Refer to "8-4-4 Cleaning disc and optical pickup" and clean the disc.
Poor playback picture	Was the image input from analog VCR (VHS, 8 mm) and recorded? The problem may be improved if a VCR equipped with TBC (time base corrector) function is used for playback.
Playback picture is greatly distorted No sound.	Was recording of external input made with "Frame" specified? Specify "Field" for "PHOTO Input" in record mode settings. Is the TV volume control set correctly? Adjust volume control on TV.
Disc Navigation thumbnails do not appear.	Did the image recorded from AV input/output jack have noise or disturbance? Re-record image with no noise or disturbance.
Photos on card cannot be played back.	Is a photo recorded on devices other than this DVD video camera/recorder being played back? The specifications of this DVD video camera/recorder allow it to play back photos that are recorded conforming to DCF standard and have 80×4000 horizontal pixels x 60×3000 vertical pixels.

Symptom	Cause and Correction
Application is not normally run on PC.	Turn the PC and the DVD video camera/recorder off, and try again.
DISC EJECT button does not work when the DVD video camera/recorder is connected to PC.	The DISC EJECT button is invalid while the DVD video camera/recorder is connected to PC. Start Windows Explorer, right-click the drive icon corresponding to the DVD video camera/recorder, and then click "Eject". Once DVD-MovieAlbumSE has started, click the Eject button on the DVD-MovieAlbumSE screen.
When the time stamp of the disc DVD-RAM disc is viewed on PC, it is different from the actual recording date/time.	Since the file system of this DVD video camera/recorder is operated on Greenwich Mean Time (GMT), the time stamp will be GMT. However, since the time zone information is recorded on disc, the date/time display on playback screen of this DVD video camera/recorder will be the actual recording date/time.
Error occurs on playback of the DVD video camera/recorder on PC.	If error occurs with USB connection, the transfer rate is not sufficient. It is recommended that you use a USB terminal conforming to USB2.0 when connecting the DVD video camera/recorder.
Error occurs during writing to disc.	The temperature of the DVD video camera/recorder is too high due to continuous operation. Disconnect the DVD video camera/recorder from PC, remove the disc from the DVD video camera/recorder, set the power switch to "OFF", and then leave it as is until the temperature decreases. After checking that the temperature has gone down, use a brand-new disc and restart operation.
Transfer of images stops.	The USB terminal of PC may be faulty. Connect the DVD video camera/recorder to another USB terminal of PC. If your PC is desktop type, it is recommended that you use USB terminal on the back of PC. If you are using USB2.0 extender card, it is also recommended that you install the newest version driver provided with USB2.0 card maker.
DVD-RAM/R/RW drive built into PC cannot be used after the provided software has been installed.	This problem may be solved if the software related to DVD-RAM/R/RW built into PC is upgraded, or if the UDF driver is uninstalled. However, if the OS of PC is Windows Me/2000 Professional, uninstalling the UDF driver will make it impossible for the photos recorded on DVD-RAM disc on the DVD video camera/recorder to be read on the PC.
Video is not recognized by software on PC.	Is the power switch of the DVD video camera/recorder set to "VIDEO" or "PHOTO (disc)"?

Symptom	Cause and Correction
An image that should have been recorded does not appear when DVD-MovieAlbumSE is started.	Use the following procedure to select the drive where DVD-RAM disc is loaded. 1) Click the "Preference" button at the top right of DVD-MovieAlbumSE screen. 2) Click "Preference" 3) Click "Device Setting". 4) Choose the drive where DVD-RAM disc is loaded in the "Drive Select" column, and then click "OK".
Executing "Export" on DVD-MovieAlbumSE will interrupt reading midway When executing "Export" on DVD-MovieAlbumSE, it will take time to read.	Do not choose "Simple Export" If you do, reading will stop midway. a) If photo is included in the range of "export", it may take more time because data must be re-encoded and read. b) If "Divide by Maker" is not chosen, it may take some time because data will be read while being re-encoded.
"Hardware Removal" results in error	Making sure the ACCESS/PC indicator on the DVD video camera/recorder goes out, turn the PC off, and then unplug the PC connection cable from the DVD video camera/recorder. If your PC uses Windows 2000 Professional, the problem may be solved if you install Windows 2000 Service Pack 3 or later.
No USB HS (high speed) connection even when USB2.0 card is used	Make sure that you have already installed the driver provided with the USB2.0 card. You will need to install the driver provided by USB2.0 card maker in order to operate the USB2.0 card at HS (high speed).
Miscellaneous	
Recognition of disc does not start.	Is the disc properly attached to the turntable? Attach the disc to the turntable properly.
	Is the disc insertion block closed? Securely close the disc insertion block.
	If the disc is not recognized even when the disc has been properly attached to the turntable and the disc insertion block has been securely closed, the DVD video camera/recorder may be faulty. Refer to "8-6 Trouble Diagnosis".
Power does not come on, or no operation occurs by pressing button. The date and time are incorrect.	Remove the battery or AC adapter/charger, reattach it, and then check to see whether operation is accepted. Has the DVD video camera/recorder been left unused for a long period of time? The internal backup battery may be discharged. Charge it. (Charge procedure)

Symptom	Cause and Correction
Disc cannot be removed. (Disc insertion block does not open)	Is battery or AC adapter/charger (power supply) connected? With the DVD video camera/recorder, a disc cannot be removed unless a power supply is connected.
	Has disc rotation stopped? Making sure the disc stops, and then restart operation. Disc cannot be removed until rotation has stopped.
	Was the battery or AC adapter/charger (power supply) removed before setting the power switch to "OFF"? Reconnect the power supply, change the power switch several times, set it to "OFF", and then press the DISC EJECT button.
	If the disc insertion block still does not open with the above procedure, the DVD video camera/recorder may be faulty. Remove the disc, referring to "8-7 Procedure for Removing Disc from Faulty DVD Video Camera/Recorder", and then refer to "8-6 Trouble Diagnosis".
The DVD video camera/recorder cannot be operated from remote control.	Is the remote control pointed at the infrared receiver on the DVD video camera/recorder? Point it at the infrared receiver on the DVD video camera/recorder.
	Is the infrared receiver on the DVD video camera/recorder exposed to direct sunlight or strong fluorescent light? The remote control cannot operate the DVD video camera/recorder when strong light strikes the infrared receiver. Adjust the position or angle of the DVD video camera/recorder.
	Is there a battery in the remote control? Also check the polarities of battery. Replace the battery if necessary.
	Is the DVD video camera/recorder powered? Turn it on.
Disc cover cannot be closed.	Is the disc loaded properly? Remove the disc and then reload it. A disc in the DVD sound holder, square cartridge or caddy cannot be used as is. Remove the disc from the package, and then load the bare disc.
Operating sound is heard cyclically.	Is a battery or AC adapter/charger (power supply) connected? Connect a battery or AC adapter/charger. This sound is heard because the disc is cyclically operated; it does not indicate a fault.

8.3. Messages and Troubleshooting

Some messages may appear on the LCD screen or in the viewfinder during operation. If a message appears, check the following, and then perform the appropriate action, according to the message content.

1) Is the disc bottom/surface reversed when using a single-sided disc?
   If so, reload the disc properly.
2) Is there any condensation on the lens or in the disc drive unit of DVD video camera/recorder?
   Condensation will occur when the DVD video camera/recorder is moved from a cold place to a warm place, e.g. If condensation occurs, set the power switch to "OFF" with the disc loaded, and then leave the DVD video camera/recorder in a dry place until condensation disappears (for 1-2 or more hours).

The messages divided using broken lines in the table can be displayed in sequence from the upper row by pressing the ▶II button.

Message	Cause/condition for message to appear	Troubleshooting
Battery is almost empty. Replace it.	Appears if the battery is discharged.	Replace with a charged battery, or use the AC adapter/charger.
Cannot combine scene.	Appears if an attempt is made to combine unconnected scenes. The specifications state that combining of only multiple scenes is possible.	Stop trying to combine scenes, or create a play list containing the scenes to be combined, and combine them on the play list.
Cannot combine scene of multiple programs.	Appears when combining the scenes in different programs was attempted.	When combining those scenes, first create a play list, and then combine the scenes on it.
Cannot combine. Deselect PHOTO scenes.	Appears if an attempt is made to combine scenes when a photo was selected. The specifications state that combining of only video scenes is possible.	Select only video scenes, or stop trying to combine scenes.
Cannot combine. Select multiple scenes.	Appears when combining one scene was attempted.	Select multiple scenes and then combine them.
Cannot delete scenes.	Appears when user performed deletion at the upper limit of 999 scenes registered.(*1)	Combine divided scenes, and then delete if necessary.(*2)
Cannot execute. Unselect multiple scenes.	Appears if an attempt is made to select multiple scenes for division. The	Divide scenes one by one.

Message	Cause/condition for message to appear	Troubleshooting
Cannot execute. Change display category to All.	Appears when combining or moving scenes was instructed with "Category: VIDEO or PHOTO" specified.	Specify "Category: All", and then operate the DVD video camera/ recorder again.
Cannot read disc. Check if cracked/both sides contrary/inserted correctly	Appears when reading or writing any recorded files cannot be done due to dirt on disc. Appears when a warped or distorted disc, or a logically damaged disc, whose initialization was previously interrupted, is loaded.	Refer to "Lens Cleaning disc and optical pickup" and clean the disc. Or replace the disc. Replace the disc.
CANNOT RECORD PHOTOS.	Appears if an attempt is made to record photos on DVD-R. The specifications states that no photo is recordable on DVD-R.	Use a DVD-RAM or card when recording photos.
Cannot replace thumbnail on PHOTO scenes.	Appears when a photo thumbnail was selected for change in scene editing menu. The specifications stipulate that the thumbnail of photo cannot be changed.	Select a video to change the thumbnail.
Cannot select any more scenes	Appears when the number of scenes selected on card has exceeded the upper limit of 999 scenes.	Release the selection of unnecessary scenes.
CARD ALMOST FULL	Appears when the remaining number of recordable photos has reached less than 10 during recording.	Prepare another card, or delete unnecessary photos
Card error has occurred. Format the card now?	Appears when a card initialized on PC, etc., or a card whose initialization was interrupted before, is loaded.	Choose "YES" and designate it to initialize the card (deleting all recorded data).
Card error has occurred. Formatting is not complete.	Appears when a damaged card is initialized.	Replace the card.
Card error has occurred. Keep card inside & restart	Appears when an error occurred during editing of video files.	Set the power switch to " OFF", and after several seconds, set it to "CARD

Message	Cause/condition for message to appear	Troubleshooting
Card has no data.	Appears when playback or editing was attempted using the Disc Navigation function with no scene recorded on the card.	Perform appropriate operation after the message disappears.
Card is not formatted. Format the card now. YES NO	Appears when an unformatted card or a card formatted on PC was loaded.	Choose "YES" and designate it when formatting card (deleting all recorded data).
Control information Error.	Also appears when reading or writing from/to recorded file cannot be performed because the disc is dirty.	Refer to "8-4-4 Cleaning disc and optical pickup" and clean the disc. Or replace the disc.
	Appears when mismatch between recorded scene and scene information occurs. Such a mismatch occurs when editing is performed near the limit of disc storage capacity, or when the control information file is operated using a device other than the VDR-M95/M75/M55/M53.	Update the control information. (Start Disc Navigation, press the MENU button, and then execute "Update Control Info." in the "Disc" menu.
COPY PROTECT	Appears if an attempt is made to record copy-guarded image. The specifications state that copy-guarded image cannot be recorded on the DVD video camera recorder.	Stop trying to record.
Data error in a part of image file. Repair data now? YES NO	Appears when reading/writing of recorded files cannot be performed because the disc is dirty. If the message appears immediately after recognition of a loaded, recorded disc was finished, first check for dirt on disc.	Refer to "8-4-4 Cleaning disc and optical pickup" and clean the disc. Or replace the disc.
	Appears if writing to file cannot be completed normally because power was turned off by mistake during video recording or editing, and an abnormality	Choose "YES" and designate partial repair (automatic repair) of video file. Choosing "NO" will display a message for verifying initialization.

Message	Cause/condition for message to appear	Troubleshooting
DISC ACCESS	This message appears during normal operation process, when the DVD video camera/recorder checks whether a proper disc has been loaded or not. It is displayed for a longer time period when the date has changed.	Operate the DVD video camera/recorder after the message disappears.
	This message appears during normal operation process, when the recorded images are being stored on disc.	Operate the DVD video camera/recorder after the message disappears.
DISC ALMOST FULL	Appears when the remaining space on disc contains no more than one minute video or IE pictures.	Delete unnecessary scenes, or replace the disc.
Disc error	Also appears when reading or writing from/to recorded file cannot be performed because the disc is dirty.	Refer to "Part 4 Cleaning disc and optical pickup" and clean the disc. Or replace the disc.
	Appears when the disc has been edited on a device other than the DVD video camera/recorder, and mismatch has occurred in recorded data.	Format the disc (deleting all recorded data), or replace the disc.

*3: Take care with the following when repairing video file:

a) If any message appears when the power switch was moved from "OFF" to "Video" or "Disc Photo" with the disc left loaded after camera recording, choose repair.

b) If recording and playback are possible with another disc, which is free from condensation or dirt, choose repair.

c) Be sure to connect the AC adapter/charger. The specifications state that repair is possible only when the AC adapter/charger is connected.

d) Although repair is normally finished in several minutes, it could take approx. one hour.

e) If the disc is removed while it is being recognized, the repair function of video file will be invalid.

f) If the timing when power is turned off is inappropriate, normal repair may be impossible.

g) If the disc contains data recorded on a device other than VDR-M95/M75/M55/M53, normal repair may not be possible.

Message	Cause/condition for message to appear	Troubleshooting
Disc error has occurred. Finalizing is not complete.	Appears when the disc could not be finalized because it was dirty.	Refer to "Use a Cleaning disc and optical pickup" and clean the disc. Or replace the disc.
	Appears if accident, such as power off, was occurred during finalizing.	Set the power switch to "OFF" and reconnect the AC adapter/charger, then set the power switch to "VIDEO" and start finalizing again. Or press the DISC EJECT button, reload the disc, and then execute finalizing.
	If the message still appears even when the disc has been cleaned and finalized again and again, the disc may be defective.	Replace the disc.
Disc error has occurred. Format the disc now? YES NO	Appears when reading or writing from/to recorded file cannot be performed because the disc is dirty.	Refer to "Use a Cleaning disc and optical pickup" and clean the disc. Or replace the disc.
	Appears when a DVD-RAM initialized on PC, etc., or a card whose initialization was suspended before, is loaded.	Choose "YES" and designate it to initialize the DVD-RAM (deleting all recorded data).
Disc error has occurred. Formatting is not complete.	Appears when the disc could not be normally formatted because it was dirty.	Refer to "Use a Cleaning disc and optical pickup" and clean the disc. Or replace the disc.
	Also appears when a warped or distorted disc was loaded, or a logically damaged disc whose formatting was suspended is loaded.	Replace the disc.
Disc error has occurred. Keep disc inside & restart.	Appears if a problem has occurred during editing of video file.	Exit the Disc Navigation function and set the power switch to "OFF" with the disc loaded, then reconnect the AC adapter/charger and set the power switch to "VIDEO" or "DISC PHOTO". The DVD video camera recorder will automatically repair the

Message	Cause/condition for message to appear	Troubleshooting
Disc includes protected scenes. Delete scene? YES NO	Appears if the loaded disc has a program (scene) that is write-protected by the software write-protect function, which is effective in program units. Although the DVD video camera-recorder is equipped with a software disc-protect function that is effective for disc units, it does not comply with software write-protect for program units. (The DVD Forum defines two types of software protect for DVD-RAM: disc units and program units.)	Release the write-protect using the device that has the software write-protect function for program units, or choose "YES" and designate it to delete the scenes.
	Appears when the card contains a scene write-protected by a device other than this DVD video camera-recorder.	Release the write-protect using the device which set it. Or choose "YES" and delete the scene.
Disc is full. Cannot add control info.	Appears if the number of scenes on play list exceeds the upper limit (999) while control information is being added. (Refer to *1)	Delete any unnecessary scenes, or combine several scenes, and then operate the DVD video camera-recorder.
Disc is not formatted. Format the disc now? YES NO	Appears when reading or writing from/to recorded file cannot be performed because the disc is dirty.	Refer to "9-4-4 Cleaning disc and optical pickup" and clean the disc. Or replace the disc.
	Appears when an unformatted DVD-RAM or one initialized other UDF2.0 on PC is loaded.	When initializing it (deleting all recorded data), choose "YES" and designate it.
	Also appears if user rejects partial repair or total repair of video file.	Choose "NO" and designate partial repair or total repair. When initializing it (deleting all recorded data), choose "YES" and designate it.
Disc is not formatted. If it formats, it becomes possible to use for camera. However, when you record from PC connection	Appears when a brand-new DVD-R was loaded.	When recording on the DVD video camera/recorder, choose "YES" and designate it. When recording video edited on PC connected via the PC connection terminal, choose "NO" and

Message	Cause/condition for message to appear	Troubleshooting
Disc overheat. Please retry later.	Appears when the temperature inside the DVD video camera/recorder, or the temperature of disc, is too high, and normal operation can not be executed.	Set the power switch to "OFF" with the disc loaded, and then leave the DVD video camera/recorder in a well ventilated place until the inside temperature decreases.
DVD-R Disc. 16:9 mode cannot be changed when Video mode is STD	Appears when the wide-screen mode was chosen with the video quality set to STD using a DVD-R. The combination of STD (352 × 480 pixels) and wide mode is prohibited by the DVD video format.	Change the video quality to XTRA or FINE when using a brand-new DVD-R. If the DVD-R has already been recorded in STD mode, replace it.
DVD-R Disc. Input Source cannot be changed.	Appears when an attempt was made to switch the input with a DVD-R recorded in wide mode. Only the 4:3 aspect screen is possible for external input. This is because the DVD video format prohibits the mixing of 16:9 and 4:3 aspect screens.	Stop trying to switch the input, or replace the disc.
DVD-R Disc. Video mode 16:9 mode cannot be changed.	Appears when an attempt was made to change the video quality or wide mode of recorded DVD-R. This is because, if even one scene is recorded after a disc is formatted, the specifications state that the video quality or wide mode used for the first recording will be held on the DVD-R.	Stop trying to change the video quality or wide mode, or replace the disc.
END OF DISC	Appears if the disc recordable capacity has reached the limit during recording.	Replace the disc.
End scene cannot be divided.	Appears when the last image of scene was selected to divide the scene. The specifications state that dividing a scene at its end is not possible.	Stop trying to divide a scene.
Error occurred. Please replace disc or format.	Also appears when reading or writing from/to recorded file cannot be performed	Refer to "8-4-4 Cleaning disc and optical pickup" and clean the disc.

Message	Cause/condition for message to appear	Troubleshooting
Found error in image file. Repair disc now? YES NO	Appears if repair has failed after message "Data error in a part of image file. Repair disc now?" appeared.	Choose "YES" and designate total repair (automatic repair of video file). Choosing "NO" will display a message for verifying initialization. [Refer to *3.]
It is unrecordable on this card.	Appears when a card other than SD memory card was loaded.	Insert an SD memory card.
JPEG file related to scenes are not found.	Appears when an attempt is made to copy photos on disc to card, when photo (JPEG) file to be copied is not stored on disc. When the DVD video camera/recorder records a photo on disc, two photo files will be stored on disc - a photo (conforming to DVD video recording format) file to be displayed on the DVD video camera/recorder, and a photo (JPEG) file for storage that is linked to the photo for display. This message will appear when only the photo file for storage has been deleted on PC, etc.	Copy photos to card via PC. The photo (JPEG) file for storage is stored in DCIM\100CDPFP folder. Stop trying to stop copy when a file is being deleted. If the file name was changed, use the PC to restore the original file name or copy the file via the PC.
No card	Appears when no card is loaded.	Insert a card.
No card. Please insert card.	Appears when recording photos on card was attempted with no card loaded.	Insert a card.
NO DISC	Appears if no disc is loaded.	Load a disc.
	Appears when a disc that cannot be used on the DVD video camera/recorder has been loaded.	Check the type of disc, and load a disc that can be used on this DVD video camera/recorder.
	Appears when the disc was not properly attached to the turntable.	Attach the disc properly.
	If any of the above does not apply, the DVD video camera/recorder may be faulty.	Refer to "8-6 Trouble Diagnosis".
No more scenes.	Appears during user operation, all	Operate the DVD video camera/

Message	Cause/condition for message to appear	Troubleshooting
Same scenes on Play List will be deleted. Delete scene? YES NO	This message appears during user operation, if even one play list has been created during scene deletion. This message does not appear when a scene is deleted from play list.	Choose "YES" and designate it to delete selected scenes.
Scenes over Limit. Cannot add scene.	Appears if an attempt is made to register a new scene in play list, with the specified 999 upper limit scenes registered. [Refer to *1]	Delete unnecessary scenes from play list before adding a new scene to it.
Scenes over Limit. Cannot divide scene.	Appears if an attempt is made to divide a scene with the specified 999 upper limit scenes registered, or the number of scenes will exceed 999 with division. [Refer to *1]	Delete unnecessary scenes before dividing a scene.
Scenes over Limit. Cannot move scene.	Appears if an attempt is made to move a scene at the upper limit of 999 scenes registered, or the number of scenes will exceed 999 by moving a scene. [Refer to *1]	Delete unnecessary scenes before moving scenes.
Stop processing.	This message appears during operation process. It will appear when user interrupted any process by pressing the stop/cancel button when processing multiple scenes, etc.	Operate the DVD video camera/ recorder after the message disappears.
There was no scene which can be deleted.	Appears when only multiple locked scenes were selected using the Disc Navigation function, and deleting them was attempted.	Use the Disc Navigation function to unlock the scenes, and then restart operation.
This card cannot be used. Please replace card.	Appears when a card other than SD memory card was loaded.	Insert an SD memory card.
This disc cannot be used. Please replace disc.	Appears when a type of disc that cannot be used on the DVD video camera/ recorder was loaded.	Check the type of disc and insert a disc usable on the DVD video camera/ recorder.

Message	Cause/condition for message to appear	Troubleshooting
Use AC adapter/charger.	Appears if a battery is used when finalizing a DVD-R. The specifications state that DVD-R can be finalized only when the AC adapter/charger powers the DVD video camera/recorder.	Terminate the Disc Navigation function, set the power switch to "OFF" with the disc loaded, remove the battery, and then connect the AC adapter/charger. Finalize the disc again.
Use AC adapter/charger. Turn off power.	Appears if a battery is used when repairing video files. The specifications state that video files can be repaired only when the AC adapter/charger powers the DVD video camera/recorder.	Set the power switch to "OFF" with the disc loaded, remove the battery, and then connect the AC adapter/charger. [Refer to *5.]
VIDEO scene cannot be copied to card.	Appears if an attempt is made to copy video to card. The specifications state that no video is unrecordable on card.	Stop trying to copy a video, or select photos and execute copy.
Write protected. Check disc.	Appears if a DVD-RAM that was write-protected for disc units by software disc protect function is loaded, or if an attempt is made to record on write-protected disc.	Release the software disc-protect.
Write protected. Check card.	Appears when an SD memory card whose erasure prevention switch was locked is loaded.	Unlock the erasure prevention switch of SD memory card.

Note:
The listed messages are subject to change without notice for improvement of performance.

8.4. Display of Error Codes and Troubleshooting

Restriction:
The information included in this section is exclusively for service personnel. Do not disclose it to persons other than service engineers.

8.4.1. Displaying error codes and cleaning them

(1) Display method

1) Use the battery or AC adapter/charger to power the DVD video camera/recorder.

2) Set the power switch to the position shown below. Then operate the DVD video camera/recorder while watching the LCD monitor or viewfinder screen:

a) Both disc and card are loaded: "VIDEO" or "CARD PHOTO"

b) Only disc is loaded: "VIDEO"

c) Only card is loaded: "CARD PHOTO"

d) Neither disc nor card is loaded: "VIDEO"

3) When a disc or card, or both are loaded, press the DISC NAVIGATION button to display the thumbnail screen. If neither disc nor card is loaded, this step is not necessary.

4) Display the error code screen using the following button operation:

Simultaneously press the SELECT, REC and ⏭ buttons.

(2) Display clearing method

1) When neither disc nor card is loaded, press the STOP/CANCEL button to restore the normal screen. When a disc or card is loaded, press the STOP/CANCEL button to restore the thumbnail screen. To restore the normal screen, press the STOP/CANCEL button again or press the DISC NAVIGATION button.

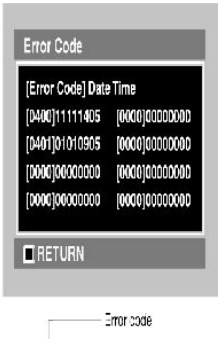
8.4.2. Details of error code display

Up to eight error codes of problems can be displayed with the dates/times when the problems occurred.

If the same problem occurs repeatedly, it will be judged as one problem, and the same error code will not continue to appear.

If more than eight problems occur, the error codes will be erased beginning with the oldest problem, and the code for the newest problem will be recorded.

If no error code is recorded, the line for error code and problem occurrence date/time will be all zero (0).



8.4.3. Major error codes and troubleshooting

Table 8-4-1 shows the error codes that are likely to frequently appear, and appropriate troubleshooting.

If error codes other than those listed in Table 8-4-1 appear, check with the factory for troubleshooting.

Table 8-4-1 Major Error Codes and Troubleshooting

Error code	Contents of problem	Troubleshooting
0200	Optical pickup failed to move.	Refer to "Disc load check flowchart" Fig. 8-4-2
0280		
0400	Recognition of disc failed.	
0401	Optical pickup was faulty.	Replace the disc drive unit.
040D	No disc	Load a disc.
1001	DVD-R was not formatted."1	Format the DVD-R.
1100	Reading data from disc failed.	Refer to "Disc load check flowchart" Fig. 8-4-2
2981	Recognition of disc failed.	Refer to "Disc load check flowchart" Fig. 8-4-2
3105	Recording photos failed because of condensation in disc drive unit (optical pickup) or dirt on optical pickup.	Set the power switch to "OFF", and then leave the DVD video camera/recorder in a dry place until condensation disappears (for at least 1-2 hours).
		Clean the optical pickup, referring to "8-4-4 Cleaning disc and optical pickup"

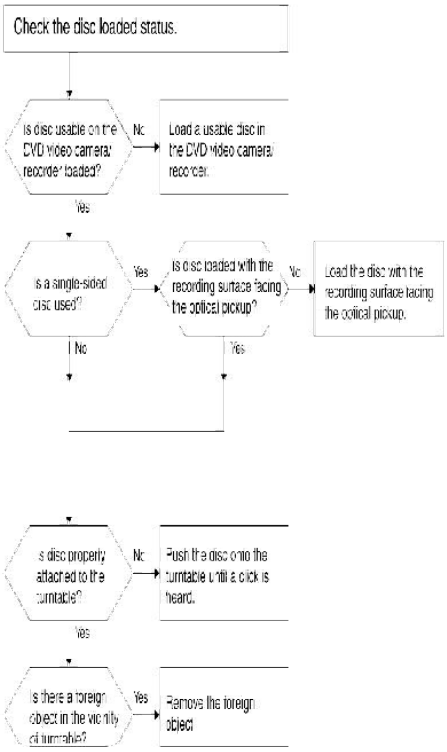
Error code	Contents of problem	Troubleshooting
3122	Recording on DVD-RAM failed because it was subject to vibrations or impact when it was being accessed.	Any vibration or impact to disc while it is being accessed will result in no recording.
7601	Optical pickup was faulty.	Replace the disc drive unit.
A080	Reading signal from disc failed due to condensation or dirt on disc.	With the disc left loaded, set the power switch to "OFF", and then leave the DVD video camera/recorder in a dry place until condensation disappears (for at least 1-2 hours).
		Clean the optical pickup, referring to "8-4-4 Cleaning disc and optical pickup".
EC87	Emergency stop occurred while data was being read or written from/to disc.	Refer to "Disc load check flowchart" Fig. 8-4-2
F100	Buffer overflowed during recording due	Remove the foreign object, taking care that the optical

Disc Load Check Flowchart

Check the following only when an instruction for referring to this chart is given in "Table 8-4-1 Major Error Codes and Troubleshooting" on the previous page.

Caution

Laser light striking the eye may cause your eyesight to be lost. For safety, be sure to remove any power supply (AC adaptar/charger, battery, etc.) from the DVD video camera/recorder before starting work.


Check the disc loaded status.
Is disc usable on the DVD video camera/ recorder loaded?
No
Load a usable disc in the DVD video camera/ recorder.
Yes
Is a single-sided disc used?
Yes
Is disc loaded with the recording surface facing the optical pickup?
No
Load the disc with the recording surface facing the optical pickup.
No
Yes
Is disc properly attached to the turntable?
No
Push the disc onto the turntable until a click is heard.
Yes
Is there a foreign object in the vicinity of turntable?
Yes
Remove the foreign object

8.4.4. Cleaning disc and optical pickup

(1) Cleaning disc

1) Use the provided disc cleaning cloth, or a soft, dry cloth to lightly clean the disc from the inner to outer edges in axial direction.

2) If the dirt cannot be removed with the above procedure, put a few droplets of absolute alcohol in a soft, dry cloth, and use it to lightly clean the disc from the inner to outer edges in axial direction.

Fig.8-4-3 Cleaning Disc

(2) Cleaning optical pickup

Note

Do not clean the optical pickup needlessly. The optical pickup is a precision component. Repeated cleaning could cause a fault.

1) Attach the AC adapter/charger or battery (power supply), and then press the DISC EJECT button to open the disc insertion block.

2) Remove the AC adapter/charger or battery (power supply).

Caution

Laser light striking the eye may cause your eyesight to be lost. For safety, be sure to remove any power supply (AC adapter/charger, battery, etc.) from the DVD video camera/recorder before starting work.

3) Check to see whether the optical pickup is dirty. If it is not dirty, cleaning is not necessary.
If the optical pickup is dirty, use the following procedure to clean it:

a) Drip one droplet of absolute alcohol on a cotton swab*1.

Lens cleaner liquid for CD/DVD (generally available) is also usable in place of absolute alcohol.

b) Use the cotton swab to clean the optical pickup in the direction of the arrow using just enough force that it

Cotton swab Turntable

8.5. Checking Versions of Firmware and Updating

The DVD video camera/recorder stores in flash memory the five types of firmware program shown in Table 8-5-1. These firmware programs can be updated whenever necessary to improve performance.

Check to see whether any defects in the DVD video camera/recorder can be eliminated by updating any firmware programs. If improvement is likely, update them.

Table 8-5-1 List of DVD video camera/recorder Firmware Programs

Type of firmware	Description
System firmware	Controls the operation of entire system, including recording, playback, Disc Navigation, connections with external devices, clock, battery, input/output, etc.
Camera microprocessor firmware	Controls the operation of camera block (including optical system).
Drive main firmware	These programs control the DVD disc drive system (mechanism block).
Drive core firmware	
Loader firmware	Performs settings when the DVD video camera/recorder starts.

8.5.1. Checking firmware versions

(1) Version check screen display method

1) Attach the AC adapter/charger to power the DVD video camera/recorder.

2) Set the power switch to the position shown below. Then operate the DVD video camera/recorder while watching the LCD monitor or viewfinder screen.

a) Both disc and card are loaded: "VIDEO" or "CARD PHOTO"

b) Only disc is loaded: "VIDEO"

c) Only card is loaded: "CARD PHOTO"

d) Neither disc nor card is loaded: "VIDEO"

3) While a disc or card, or both, are loaded, press the DISC NAVIGATION button to display the thumbnail screen. If neither disc nor card is loaded, this step is not necessary.

4) Display the version check screen (version or information display screen) using the following button operation.

Simultaneously press the SELECT, REC and ⏮ buttons.

(3) Details of information display/version screens

Table 8-5-2 Detail/Version Screens

Item	Display content
Model	Model name
System	System firmware version number
Camera	Camera microprocessor firmware version number
Drive (Main) Drive (Core)	Drive main firmware version number Drive core firmware version number

Information:

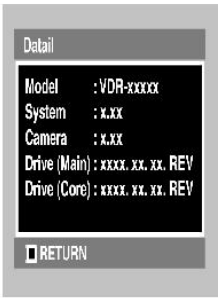
1) With actual screens, figures and letters will appear in digits displayed as x on illustrations.

2) The number at the bottom right of screens shows the operation hours of disc drive unit. Use this for reference to determine how long the customer has used the DVD video camera/recorder.

Example: 10355: 103 hours 55 minutes

This number will not appear, however, when the power switch is set to "CARD PHOTO". When the disc drive unit is replaced, the operation hours of the newly assembled unit will appear.

When no disc is loaded



When disc is loaded

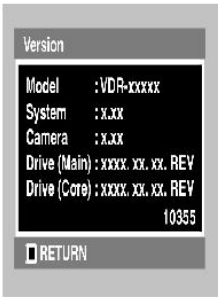


Fig. 8-5-1 Example of Display on Detail/Version Screens

8.5.2. Updating firmware

If you receive information from the factory on service bulletin, etc. that updating firmware is needed, you should update to improve the performance, functions and operability of DVD video camera/recorder.

1) Acquire the data for updating of firmware and create a disc or card for updating.

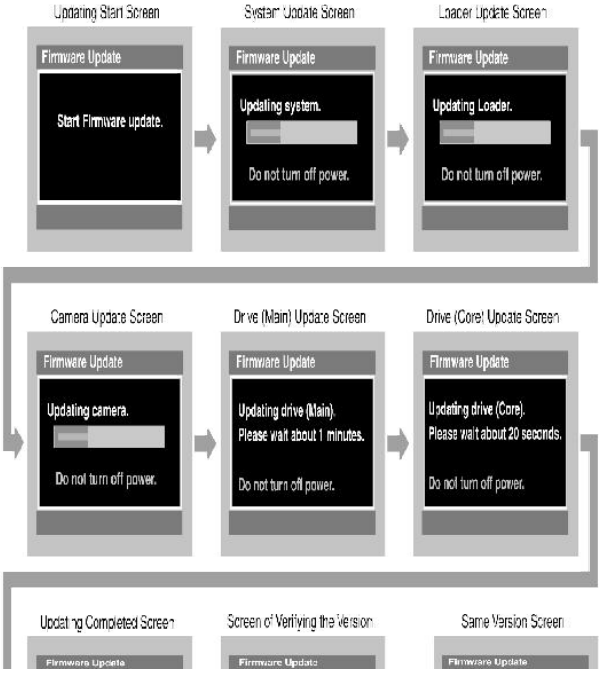
2) Set the power switch to "OFF", and then use the AC adapter/charger to power the DVD video

5) After approx. 20 seconds, the updating start screen (Fig. 8-5-2) will appear, and the firmware programs will be automatically updated thereafter. During updating, screens showing that designated firmware program is being updated will appear, followed by screen showing that updating is complete.

Not all firmware programs need updating every time. If the version of the data on disc card for updating is identical to that of firmware stored in DVD video camera/recorder, the same version screen will appear.

6) When all required updating is complete, the screen for verifying the version of updated firmware will appear, and the updated firmware will be displayed in red.

7) To complete updating, set the power switch to "OFF", and then remove the disc card for updating.



8.6. Trouble Diagnosis

Information:

1) Use the prepacked AC adapter/charger to power the DVD video camera/recorder for trouble diagnosis.

2) The trouble diagnosis flowchart was prepared presupposing that the circuit boards have been normally attached and connected. Therefore, make sure beforehand that the circuit boards are correctly connected, that connectors and cables are not damaged, and that the status of their connections is correct.

Cautions

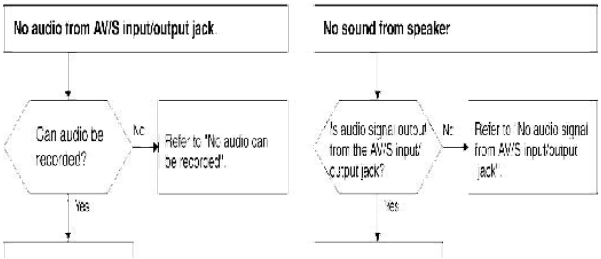
1) The VDR-M95 incorporates a high-voltage flash unit. Use countermeasures to prevent electric shock, such as discharging the capacitor, and take great care during work. The flash unit keeps its high voltage even if the power supply (AC adapter/charger, battery, etc.) is removed.
2) Never look into the objective lens of optical pickup block in disc drive unit, and take great care that the reflected laser beam does not strike your eye. Doing so could cause serious vision damage.

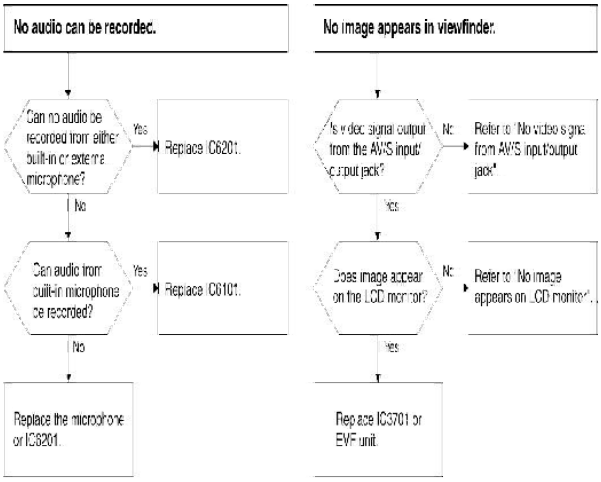
8.6.1. Trouble disgnosis flowchart

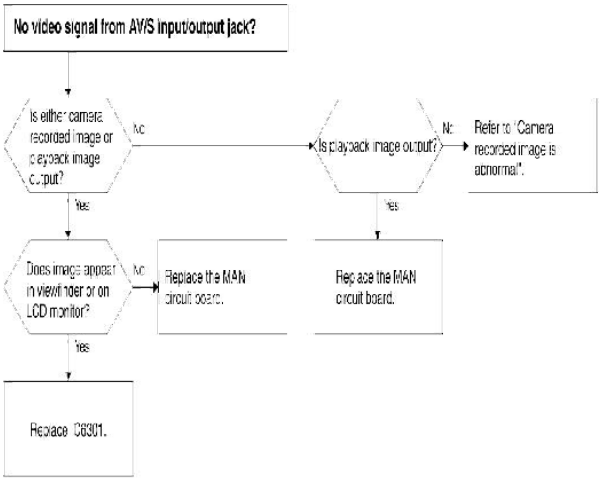
Interpreting the trouble diagnosis flowchart:

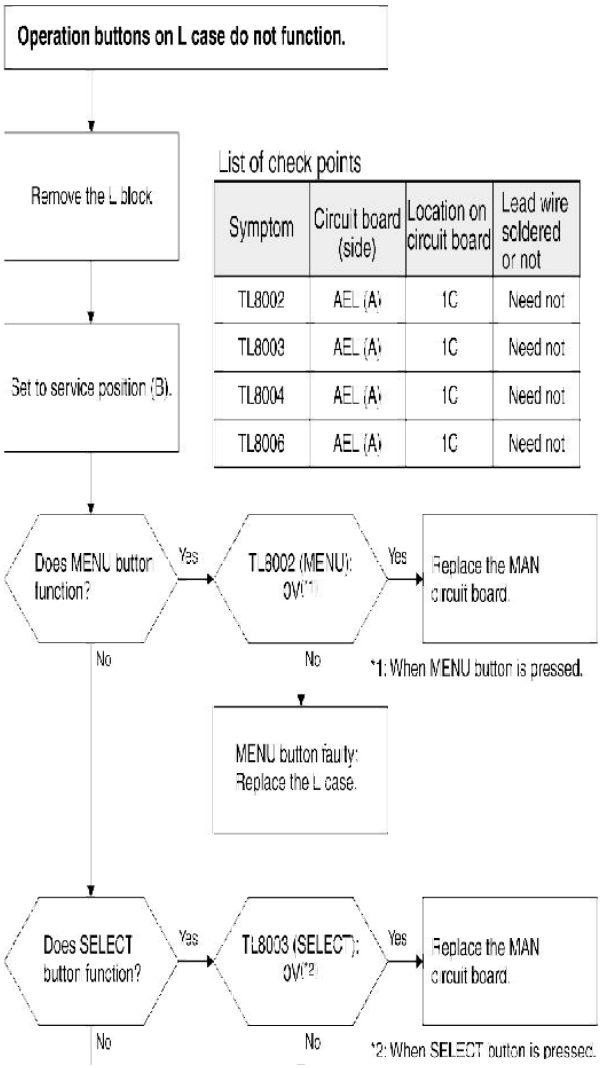
1) If removing any component is stated in the flowchart, remove that component, referring to "9. Disassembly and Reassembly".

2) If "Set to service position (B)" is given in the flowchart, set the DVD video camera/recorder to the appropriate service position, referring to "8-6-2 Reassembly to enable service position".


No audio from AV/S input/output jack
Can audio be recorded?
No
Refer to "No audio can be recorded".
Yes
No sound from speaker
Is audio signal output from the AV/S input/output jack?
No
Refer to "No audio signal from AV/S input/output jack".
Yes

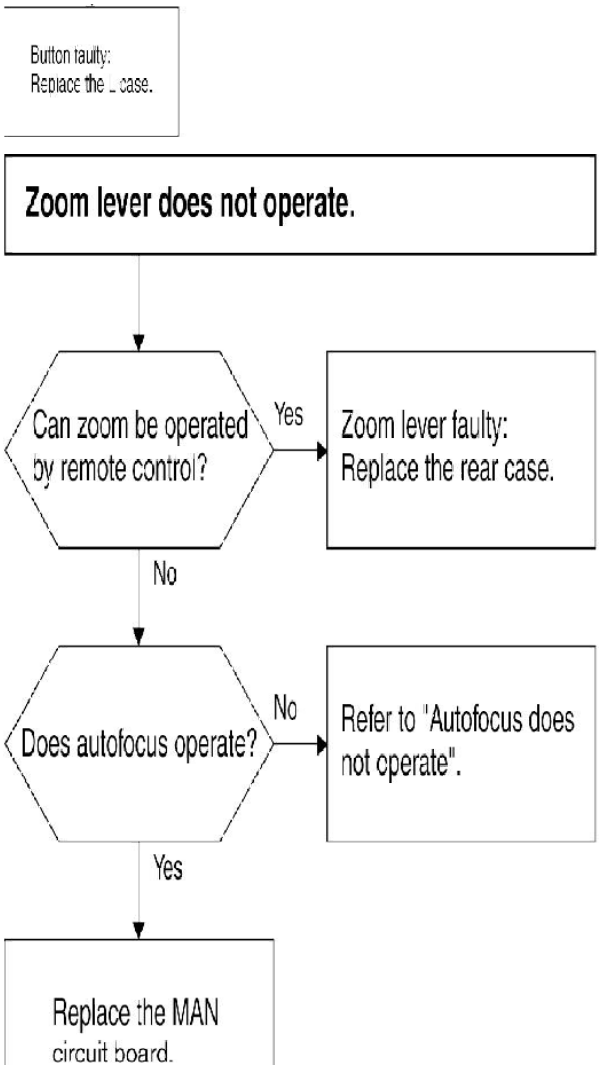

No audio can be recordec.
Can no audio be recorded from either built-in or external microphone?
Yes
Replace IC6201.
No
Can audio from built-in microphone be recorded?
Yes
Replace IC6101.
No
Replace the microphone or IC6201.
No image appears in viewfinder.
Is video signal output from the AV/S input/output jack?
No
Refer to "No video signal from AV/S input/output jack".
Yes
Does image appear on the LCD monitor?
No
Refer to "No image appears on LCD monitor".
Yes
Replace IC3701 or EVF unit.


No video signal from AV/S input/output jack?
Is either camera recorded image or playback image output?
No
Is playback image output?
No
Refer to "Camera recorded image is abnormal".
Yes
Yes
Does image appear in viewfinder or on LCD monitor?
No
Replace the MAIN circuit board.
Replace the MAIN circuit board.
Yes
Replace IC6301.



List of check points

Symptom	Circuit board (side)	Location on circuit board	Lead wire soldered or not
TL8002	AEL (A)	1C	Need not
TL8003	AEL (A)	1C	Need not
TL8004	AEL (A)	1C	Need not
TL8006	AEL (A)	1C	Need not



8.6.2. Reassembly to enable service position

Cautions

1) The DVR-M95 incorporates a high-voltage flash unit. Use countermeasures to prevent electric shock, such as discharging the capacitor, and take great care during work. The flash unit keeps its high voltage even if the power supply (AC adapter/charger, battery, etc.) is removed.
2) Laser light striking the eye may cause your eyesight to be lost. For safety, be sure to remove any power supply (AC adapter/charger, battery, etc.) from the DVD video camera/recorder before starting work.

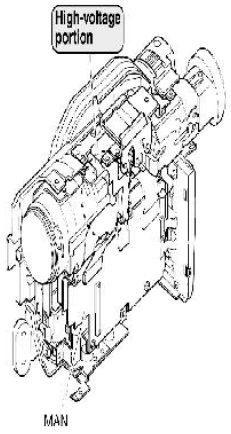
There are totally three kinds of service position, such as (A) and (B) for diagnosing internal each blocks simply, are (C) for checking the signal waveform to carry out component parts repair using the extension cables.

Information:

Numbers in the procedural diagram are step numbers of procedure, letters in brackets [ ] show the types of screw.

(1) Setting to service position (A)

Service position (A) is mainly used to diagnose trouble in the system of operation buttons on rear case, power supply system and video/audio signal system. Perform trouble diagnosis using the check points on MAN circuit board.



1) Connect the two flat cables of rear block to the MAN circuit board (Fig. 8-6-2).

2) Attach the MAN circuit board and rear block to the R block.

3) Use the two screws [E] to secure the MAN circuit board.

4) Connect the GSL-H/GSL-M/GSL-L and MAN circuit boards.

5) Connect the DRF-H/DRF-M/DRF-P and MAN circuit boards.

6) Use the three screws [C] to secure the rear block.

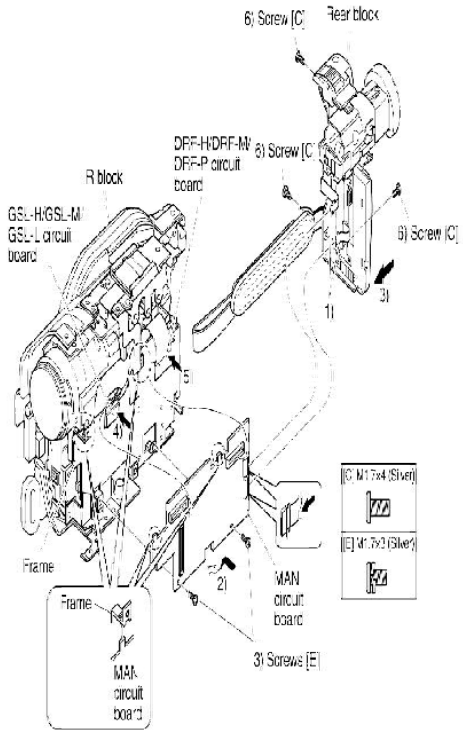


Fig. 8-6-2 Setting to Service Position (A)

Information:

The procedure for setting to service position (B) varies depending on the removed component. Perform steps from 1) after removing the MAN circuit board; perform only step 8) after removing the L block.

1) Attach the MAN circuit board and rear block to the R block, referring to "1) Setting to service position (A) (Fig. 3-6-2)".

2) Attach the AEL circuit board to R block. Securely connect the AEL and MAN circuit boards at this time.

3) Use the three screws [E] to secure the AEL circuit board.

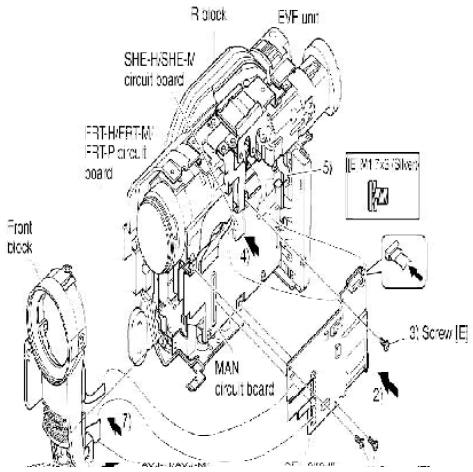
4) With VDR-M95/M75, connect the SHE-H/SHE-M circuit board to AEL circuit board.

The SHE-H/SHE-M circuit board is not mounted in VDR-M55/M53.

5) Connect the flat cable of EVF unit to the AEL circuit board.

6) Attach the front block to R block.

7) Connect the AVJ-H/AVJ-M/AVJ-P and FRT-H/FRT-M/FRT-P circuit boards to AEL circuit board.



8) Connect the two flat cables on L block, and the connector of speaker cable, to the AEL circuit board (Fig. 8-6-5).

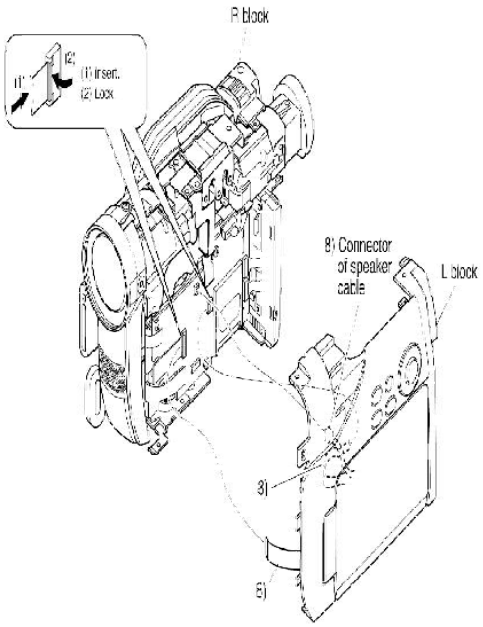


Fig. 8-6-5 Setting to Service Position (B) [2/2]

(3) Setting to Service Position (C)

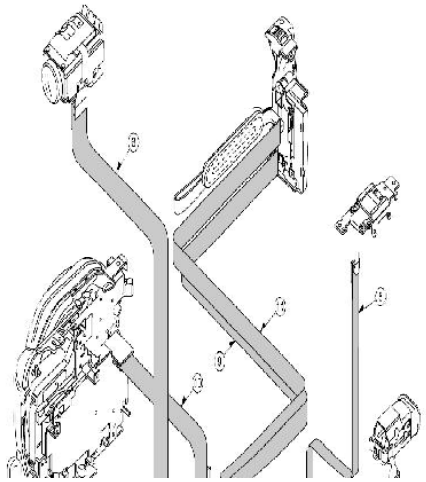
Service Extension cables

These models are required the following extension cables for connections.

Note

Use the following extension cables when checking or adjusting individual circuit boards except module parts.

No.	Part No	Connection	Pin	Remarks
1	VFK1956	PG1801(FRT-H/M/P) ⟷ PG8001(AEL)	10Pin BtoB	NEW
2	VFK1956	LCD ⟷ PG8003(AEL)	25Pin ZIF/FC	NEW
3	VFK1957	PG1901(AWJ-H/M/P) ⟷ PG6002(AEL)	20Pin BtoB	NEW
4	VFK1480	L COVER ⟷ PG8011(AEL)	6Pin 0.5 F/C	
5	VFK1957	PG0151(SHE-H/M) ⟷ PG8004(AEL)	20Pin BtoB	NEW
6	VFK1943	EVF ⟷ PG3701(AEL)	18Pin 0.5 F/C	
7	VFK1958	PG7001(MAN) ⟷ PG8001(AEL)	120Pin BtoB	NEW
8	VFK1958	PG2001(MAN) ⟷ PG1001(GSL-H/L/M)	60Pin BtoB	NEW
9	VFK1960	PG0501(MAN) ⟷ BATTERY TERMINAL	12Pin 0.5 F/C	NEW
10	VFK1961	PG7002(MAN) ⟷ PG2201(DRF-H/F/P)	70Pin BtoB	NEW
11	VFK1864	PG7004(MAN) ⟷ REAR COVER	14Pin 0.5 F/C	



8.7. Procedure for Removing Disc from Faulty DVD Video Camera/ Recorder

8.7.1. Item to be checked

Connect the AC adapter/charger or charged battery (power supply), make sure that the ACCESS indicator turns off, and then press the DISC EJECT button again.
Even with normal product, the disc cannot be removed while the ACCESS indicator is lit or blinking.

Information:
Be sure to connect the AC adapter/charger or charged battery pack (power supply) before pressing the DISC EJECT button.
The DISC EJECT button will not work unless a power supply is connected.

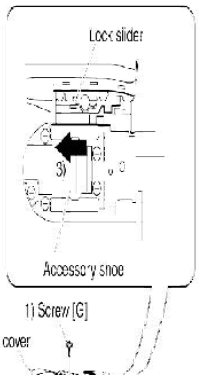
8.7.2. How to remove disc

If the disc cannot be removed after performing "8-7-1 Item to be checked", remove it using the procedure in this section.

Cautions

⚠ Laser light striking the eye may cause your eyesight to be lost. For safety, be sure to remove any power supply (AC adapter/charger, battery, etc.) from the DVD video camera/recorder before starting work.

Information:
1) The VDR-M95 is used for explanation in this section. Although the shapes of parts are slightly different for each model, the procedure is identical for all models.
2) Numbers in the procedural diagram are step numbers of procedure, and letters in brackets [ ] show the types of screw.



1) Remove screw [G].
2) Remove the top cover in the direction of the arrow.
3) Use a finger-tipped flat-bladed screwdriver, etc., to move

8.8. System Resetting/Resetting Camera Functions

8.8.1. List of items to be reset

Table 5-8-1 shows the items that will be reset to defaults at the factory by the two types of reset operation: "system reset" and "resetting camera functions". Check the settings of the received device.

Use the memo column in the table to enter the settings of any received device.

(1) Procedure for checking settings

1) Set the power switch to "OFF" and use a battery or the AC adapter/ charger to power the DVD video camera/recorder.

2) Insert a DVD-RAM, and then set the power switch to "VIDEO". For subsequent steps, operate the DVD video camera/recorder while viewing the LCD monitor or viewfinder.

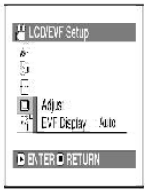
3) Press the MENU button to display the camera function setup screen. Make sure of the settings.
Do not press the QUICK MENU button at this time. Pressing the QUICK MENU button will not allow you to check the settings.

4) Operate the ⏮ / ⏭ / ◀◀ / ▶▶ buttons to display the screens for the record function setup, date function setup, EVF/LCD setup and initial setup, in sequence, making sure of the settings.
At this time, the items on photo quality, external photo input and self-timer will not appear, since they are related to photo recording. Check them in steps 6) and 7).

5) Set the power switch to "CARD PHOTO". It is not necessary to insert a card at this time.

6) Press the MENU button to display the camera function setup screen and then operate the ⏮ / ⏭ / ◀◀ / ▶▶ buttons to display the record function setup screen in order to check the settings on flash (VDR-M95 only), photo quality, external photo input and self-timer.

7) After checking is complete, press the MENU button to restore the ordinary screen.



Yes: Will be reset

Table 3-8-1 List of items to be reset No: Will not be reset

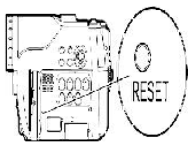
Item	System reset	Camera function reset	Default at factory	Setting range	Remarks	Memo
Camera Functions Setup						
Program AE	Yes	Yes	Auto	Auto, Sports, Portrait, Spotlight, Sand & Snow, Low Light		
White Bal.	Yes	Yes	Auto	Auto, Set, Outdoor, Indoor 1, Indoor 2		
EIS	Yes	Yes	On	On, Off	Displayed only in the VIDEO mode. (Except for VDR-M73)	
Dig. Zoom	Yes	Yes	VDR-M95/M75: M75: 40x VDR-M55/M53: 60x	VDR-M95/M75: 240x, 40x, Off VDR-M55/M53: 800x, 60x, Off	Maximum 40x or 60x in PHOTO mode even if set to 240x or 800x.	
MIC Filter	Yes	Yes	Off	On, Off	Displayed only in the VIDEO mode.	
Flash	Yes	Yes	Auto	Auto, On, Off	Displayed only in the CARD PHOTO mode. (VDR-M95 only)	
Record Functions Setup						
VIDEO Mode	Yes	Yes	FINE	XTRA, FINE, STD	Displayed only in the VIDEO mode.	
Quality	Yes	Yes	FINE	FINE, NORM, ECO	Displayed only in the CARD PHOTO mode.	
16:9	Yes	Yes	Off	On, Off	Displayed only in the VIDEO mode.	
Input Source	Yes	Yes	CAMERA	CAMERA, LINE, S LINE	S LINE is not possible on VDR-M53.	
PHOTO Input	Yes	Yes	Field	Frame, Field	Displayed only in the PHOTO mode.	

Item	System reset	Camera function reset	Default at factory	Setting range	Remarks	Memo
LCD/EVF Setup						
LCD Brightness	Yes	Yes	Center			
EVF Brightness	Yes	Yes	Center			
Color Level	Yes	Yes	Center			
EVF Display	Yes	Yes	Auto	Auto, On		
Initial Setup						
Beep	Yes	Yes	On	On, Off		
Power Save	Yes	Yes	Off	On, Off		
Record LED	Yes	Yes	On	On, Off		
Language	Yes	Yes	English	English, French, Spanish, German, Italian		
Demo Mode	Yes	Yes	Auto	Auto, Off, Start		

8.8.2. System reset procedure

Note

Always perform system reset after completing repair. System reset will erase all error codes stored in flash memory.

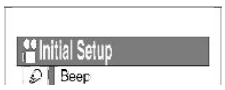


1) Set the power switch to "OFF", and then disconnect the battery or AC adapter/charger.
2) Use a fine tipped pen, etc. to hold down the RESET button for approx. 2 seconds.

Fig 8-8-2 Reset switch position

8.8.3. Procedure for resetting camera functions

1) Connect a battery or AC adapter/charger to power the DVD video camera/recorder.
2) Set the power switch to "VIDEO" (loading disc is not



8.9. Special Functions

Restriction:

The information included in this section is exclusively for service personnel. Do not disclose it to persons other than service engineers.

8.9.1. Forced initialization of DVD-RAM

(1) Application/Symptom

Perform this procedure when Disc Navigation does not start normally and initialization is not possible with the procedure explained in instruction manual.

(2) Procedure

Note

1) Initialization will delete all data on disc. Copy any necessary files to PC, etc.

2) Do not turn power off or remove the disc during initialization. Such an interruption will make the disc unusable.

1) Use the AC adapter/charger to power the DVD video camera/recorder, and set the power switch to "VIDEO" or "DISC PHOTO".
   Do not use a battery for initializing disc. If power is interrupted during work, the disc could become unusable.
2) Make sure that the DVD-RAM to be initialized is free from dirt or scratch. If the disc is dirty or scratched, normal initialization may be impossible.
3) Insert the DVD-RAM to be initialized.
4) After the disc is recognized, operate the following buttons to display the disc formatting screen (Fig. 8-9-1).
   Hold down the SELECT, REC and + (plus) buttons simultaneously for at least 3 seconds.

Fig. 8-9-1 Screen for Disc Formatting

8.9.2. EEPROM data backup and write

(1) Application

Perform this work whenever you replace the MAIN circuit board on which the EEPROM is mounted. Create a backup file of the data in EEPROM to be replaced in a PC, and write the backup file to new EEPROM. Some adjustment items that are performed after replacement can be omitted. Refer to "10-3-2 List of Adjustments Needed After Replacing Major Components" for adjustment items that can be omitted.

Information:

It may be impossible to back up the data in EEPROM to be replaced, depending on the status of fault. In such a case, replace the MAIN circuit board, and then perform "10-4-1 Initial Data Write".

(2) Preparations

1) Open the LCD monitor. Insert a fine-tipped flat-bladed screwdriver into the groove in adjustment cover, and remove the cover from L case in the direction of the arrow. Be very careful not to scratch the cover or L case with screwdriver.

2) Connect the DVD video camera/recorder, jigtool, and power supply as shown in Fig. 8-9-2. Refer to "10-1-1 List of Jigs and Tools used when Creating Reference Data" for details on jigtool and power supply in the figure.

3) Copy the adjustment program to HDD of PC.
Refer to "10-1-5 Copying or Deleting Adjustment Program" for copying.

4) Start the adjustment program in order to display the adjustment menu screen on PC display.
Refer to "10-2-6 Starting and Terminating Adjustment Program" for how to start the program.

Caution

⚠ It is very dangerous to perform any work with the DVD video camera/recorder disassembled, since the DVD video camera/recorder has a laser-emitting block and high-voltage circuits. Do not remove any parts other than the adjustment cover.

Note

Always connect the Hakeyon connector before connecting the DC power cord to the DVD

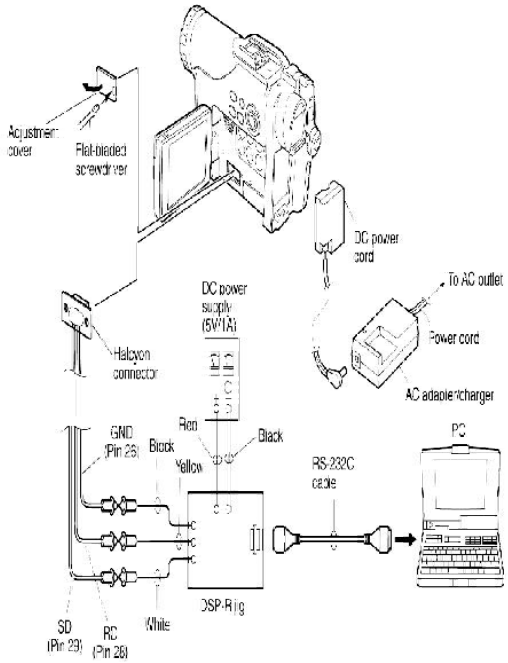


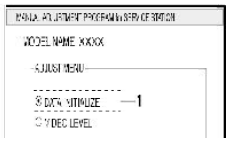
Fig. 8-9-2 Connections when creating backup file of EEPROM data and writing

(3) Backup method

1) Choose DATA INITIALIZE on the ADJUST MENU screen.

2) Click the EXECUTE button on ADJUST MENU screen to proceed with the DATA INITIALIZE MENU screen.

ADJUST MENU screen



3) Choose Original Data Backup on the DATA INITIALIZE MENU screen.

> Note
> Do not choose "Initial Data Write" on the DATA INITIALIZE MENU.
> Refer to "10-4-1 Initial Data Write" after backup for "Initial Data Write".

4) Click the EXECUTE button on DATA INITIALIZE MENU screen to proceed with the BACKUP FILE SELECT screen.

5) From the BACKUP FILE SELECT screen, select or set the names of folder and file in which the data is stored. This section refers to the folder and file as "EEP" and "backup.eep" for explanation. Freely select and set easy-to-understand names.

6) Click the SAVE button on BACKUP FILE SELECT screen to start backup.
The progress status can be confirmed using the PROGRESS STATUS dialog.

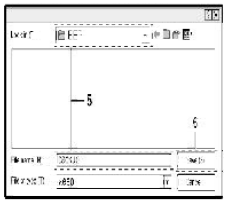
7) When backup is complete, the BACKUP FINISHED dialog will appear. Click the OK button in dialog to restore the DATA INITIALIZE MENU screen.

8) Then click the RETURN buttons on each menu screen to restore the MODEL SELECT screen, and click the EXIT button on MODEL SELECT screen to exit the adjustment program.

9) Disconnect the DVD video camera/recorder, jig/tool and power supply, and then replace the MAIN circuit board.

DATA INITIALIZE MENU screen

BACKUP FILE SELECT screen



PROGRESS STATUS dialog

BACKUP FINISHED dialog

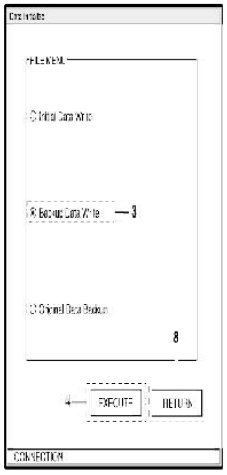
(4) Write method

Restrictions:
Never write data of any other product.
The EEPROM data includes adjustment values, etc. that are peculiar to that product. It is different for each product, even if the model is the same.
If you write the data of another product by mistake, rewrite the correct data.

1) Choose DATA INITIALIZE on the ADJUST MENU screen.
2) Click the EXECUTE button on ADJUST MENU screen to proceed with the DATA INITIALIZE MENU screen.
3) Choose Backup Data Write on the DATA INITIALIZE MENU screen.
4) Click the EXECUTE button on DATA INITIALIZE MENU screen to proceed with the WRITE FILE SELECT screen.
5) From WRITE FILE SELECT screen, select the folder and file in which the data has previously been backed up.
This section refers to the folder and file as "EEP" and "backup.eep" for explanation.
6) Click the OPEN button on WRITE FILE SELECT screen to start writing.
The progress status can be confirmed using the PROGRESS STATUS dialog.
7) When writing is complete, the INITIALIZATION FINISHED dialog will appear. Click the OK button in dialog to restore the DATA INITIALIZE MENU screen.

ADJUST MENU screen

DATA INITIALIZE MENU screen



WRITE FILE SELECT screen

9. Disassembly and Reassembly

9.1. Items to be Checked

(1) Checking Disc

Connect the AC adapter/charger or charged battery (power supply), and then press the DISC EJECT button to make sure that no disc is loaded. After checking, close the disc insertion block. If the disc insertion block does not open normally, use the same procedure as in "9-3 (3) Removing cushion F and cushion R" to open the disc insertion block; make sure that no disc is loaded.

(2) Checking Card

Make sure that no card is loaded in the card slot, and then, close the card slot cover.

Caution

⚠ Laser light striking the eye may cause your eyesight to be lost. For safety, be sure to remove any power supply (AC adapter/charger, battery, etc.) from the DVD video camera/recorder before starting work.

9.2. Order of Disassembly

1) Refer to the disassembly flowcharts in Fig. 5-2-1 for the order of removing each component. Unless otherwise specified, use the reverse procedure to reassemble the removed components.

2) When replacing the MAN circuit board, it is recommended that you back up the EEPROM data in advance, referring to "8-9-2 EEPROM data backup and write". write the EEPROM data after replacing the MAN circuit board.

3) After replacing any circuit boards and any units, perform any necessary adjustments according to "10-3-2 List of adjustments needed after replacing major components".

Note

When replacing components, be sure to use only those shown in "Replacement Parts List".

Reading Disassembly Flowchart:

After locating the target component in the flowchart, remove all components in sequence until the target is reached, following the arrows (routes) from the top left of flowchart. If multiple routes exist to the target component from the top of flowchart, remove all the components on all the routes.

9.3. Disassembly

Information:

1) Even if the shapes of parts are different, the following disassembly procedure, using the VDR-M95, is the same for all models.

2) Numbers in the disassembly procedure diagrams are step numbers of disassembly procedures, and letters in brackets [ ] show the types of screw.

(1) Lens Hood [VDR-M95/M75/M55/M53]

1) Turn the lens hood in the direction of the arrow to remove it.

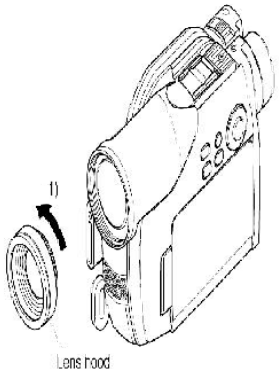
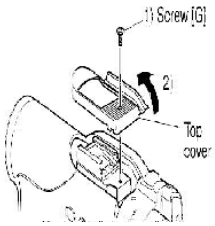


Fig. 9-3-1

(2) Top Cover [VDR-M95/M75/M55/M53]

1) Remove the screw [G].

2) Remove the top cover in the direction of the arrow.



Information:

1) Replace cushion F and cushion R only if they are damaged or deteriorate.

2) Cushions F and R are attached to the R case that is a service part.

1) Move the lock slider in the direction of the arrow to open the disc insertion block.

2) Use tweezers, etc. to remove cushions F and R from the R case, taking care not to scratch the R case or disc drive unit.

Cautions during disassembly and reassembly:

1) Make sure that there is no dust or remaining cushioning material on the R case.

2) When replacing cushions F and R, always use brand-new cushions.

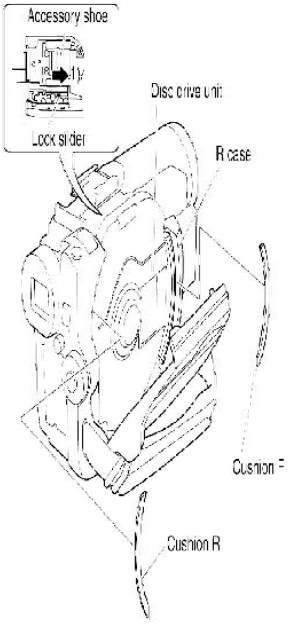
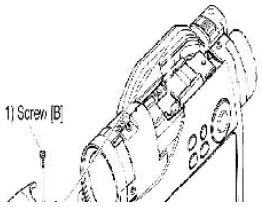


Fig. 9-3-3

(4) Lens Cover [VDR-M95/M75/M55/M53]

1) Remove the screw [B].

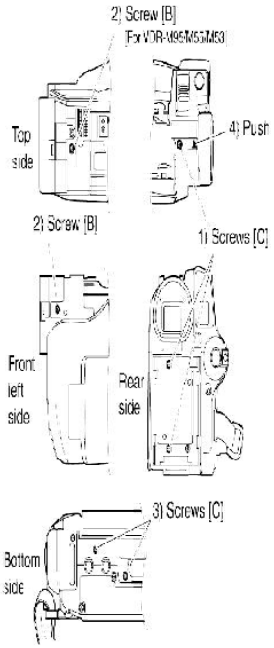
2) Remove the lens cover in the direction of the arrow.



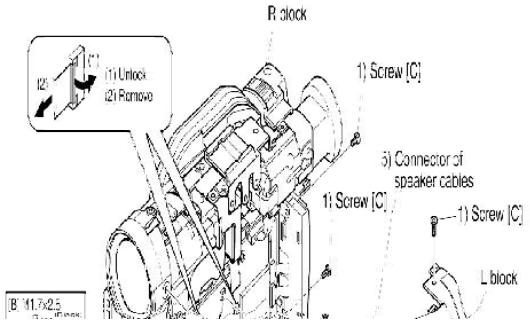
(5) L Block [VDR-M95/M75/M55/M53]

1) Remove the three screws [C].
2) With VDR-M95/M55/M53, remove the two screws [B].
   With VDR-M75, remove the screw [B].
3) Remove the two screws [C].
4) While pushing the upper part of EVF unit or the L case, open the L block in the direction of the arrow, making sure that the two flat cables and the other two cables (speaker cables) between the L block and R block are not disconnected.
5) Unplug the connector of speaker cables.
6) Disconnect the two flat cables.

Caution during disassembly and reassembly:
Securely plug in the connector of speaker cable and connect the two flat cables.



Detailed view of screw positions



(6) Front Block [VDR-M95/M75/M55/M53]

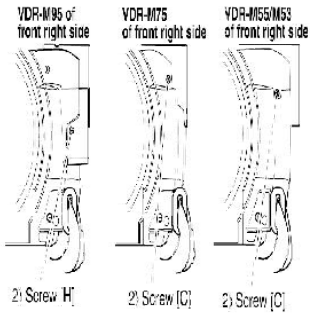
1) With VDR-M95/M55/M53, Open the jack cover, and then remove the three screws [C]. With VDR-M75, Open the jack cover, and then remove the two screws [C] and screw [B].

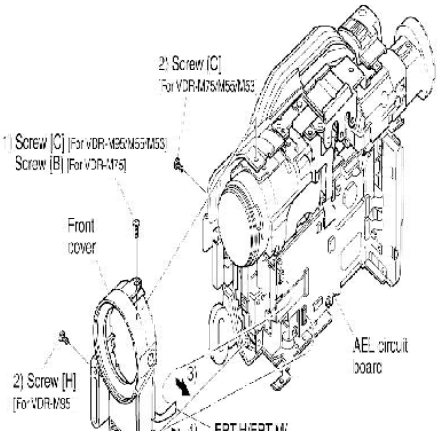
2) With VDR-M95, remove the screw [H]. With VDR-M75/M55/M53, remove the screw [C].

3) Remove the FRT-H/FRT-M/FRT-P circuit board from AEL circuit board in the direction of the arrow.

4) Remove the AVJ-H/AVJ-M/AVJ-P circuit board from AEL circuit board in the direction of the arrow.

5) Remove the front block in the direction of the arrow.




2) Screw [C] (For VDR-M75/M55/M53)
1) Screw [C] (For VDR-M95/M55/M53)
Screw [B] (For VDR-M75)
Front cover
AEL circuit board
2) Screw [H] (For VDR-M95

(7) AEL Circuit Board [VDR-M95/M75/M55/M53]

1) Disconnect the flat cable.

2) With VDR-M95/M75, remove the SHE-H/SHE-M circuit board from AEL circuit board in the direction of the arrow. The SHE-H/SHE-M circuit board is not mounted in VDR-M55/M53.

3) Remove the three screws [E].

4) Remove the AEL circuit board from the MAN circuit board in the direction of the arrow.
The AEL and MAN circuit boards are directly joined via the connector. Removing the AEL circuit board in a direction other than that of the arrow could damage the connector.

Caution during disassembly and reassembly

Securely connect the AEL and MAN circuit boards.

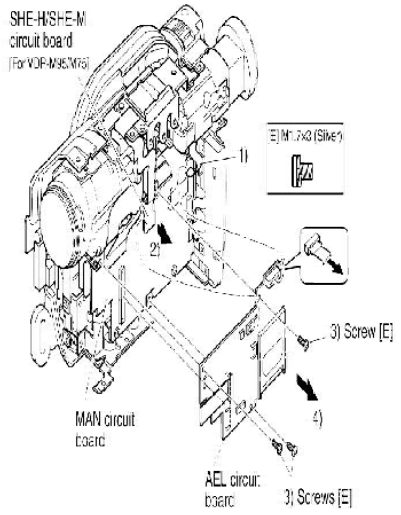


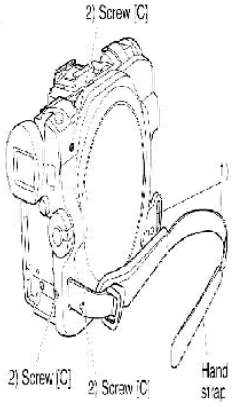
Fig. 9-3-7

(8) MAN Circuit Board and Rear Block [VDR-M95/M75/M55/M53]

Information:

Before replacing the MAN circuit board, refer to "9-9-2 EEPROM data backup and write".

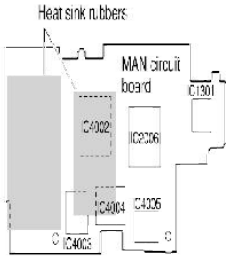
1) Remove the hand strap from R case.
2) Remove the three screws [C].
3) Remove the DRF-H/DRF-M/DRF-P circuit board from MAN circuit board in the direction of the arrow.
4) Remove the GSL-H/GSL-M/GSL-L circuit board from MAN circuit board in the direction of the arrow.
5) Remove the two screws [E].
6) Remove the MAN circuit board and rear block separately in the directions of the arrows. It may be difficult to remove the MAN circuit board, since the heat sink rubbers of board will stuck to the frame.
7) Disconnect the two flat cables.



Right side

Note

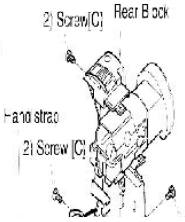
Do not scratch the surface of IC4003, which is a silicone substrate (silicone wafer) made of semiconductor. Scratching it could cause a fault.



Positions of heat sink rubbers and IC4003

Caution during disassembly and reassembly:

Be sure to paste the two heat sink rubbers to the MAN circuit board. Neglecting this could cause a fault.



(9) Rear Case and EVF Unit [VDR-M95/M75/M55/M53]

1) Pull out the EVF unit in the direction of the arrow.
2) Remove the eye cup in the direction of the arrow.
3) Remove the screw [C].

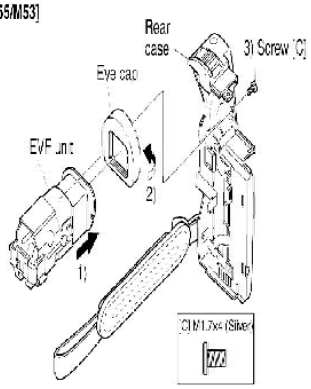


Fig. 9-3-9

(10) Hand Strap [VDR-M95/M75/M55/M53]

1) Remove the two screws [F].
2) Remove the screw [F], taking care because the spring of battery release button may pop out.
3) Remove the hand strap in the direction of the arrow, and then pull out the pin.

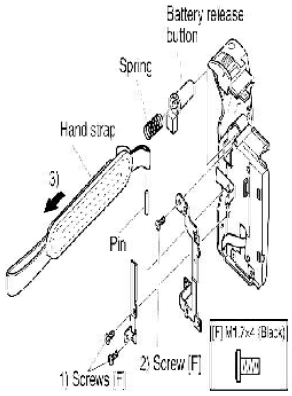


Fig. 9-3-10

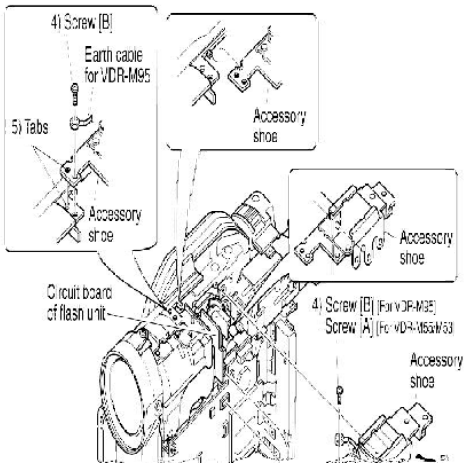
(11) L Cover [VDR-M95/M75/M55/M53]

1) Remove the five screws [F].
2) Release the tab, and then remove the L case

(12) Accessory Shoe and SHE-H/SHE-M circuit board [VDR-M95/M75/M55/M53]

Information:
The SHE-H/SHE-M circuit board is not mounted in VDR-M55/M53.

1) With VDR-M95/M75, remove the SHE-H/SHE-M circuit board from AEL circuit board in the direction of the arrow.
2) With VDR-M95, remove the SHE-H circuit board from the circuit board block of flash unit in the direction of the arrow.
3) Remove the screw [B].
4) With VDR-M95/M75, remove the screw [B].
With VDR-M55/M53, remove the screw [A].
5) Remove the accessory shoe together with SHE-H/SHE-M circuit board in the direction of the arrow.
6) With VDR-M95/M75, remove the SHE-H/SHE-M circuit board from the accessory shoe in the direction of the arrow.



(13) Camera Block [VDR-M95/M55/M53]

1) With VDR-M95, remove the screw [B].
With VDR-M55/M53, remove the two screws [B].
2) With VDR-M95, remove the screw [C].

Note
Take great care when handling the camera block: The camera block contains the lens unit, which is a precision component. Subjecting the lens unit to any impact, however slight, could result in a fault.

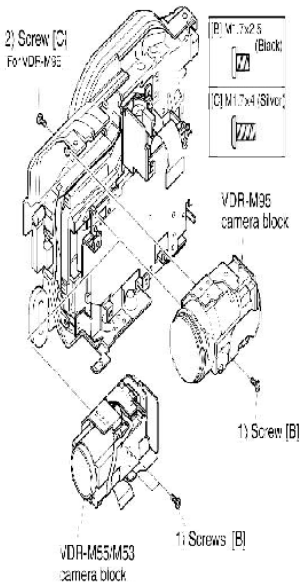
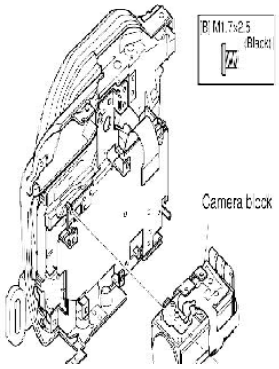


Fig. 3-3-15

(14) Camera Block [VDR-M75]

1) Remove the screw [B].

Note
Take great care when handling the camera block: The camera block contains the lens unit, which is a precision component. Subjecting the lens unit to any impact, however slight, could result in a fault.



(15) Flash Unit [VDR-M95]

Caution

⚠ Since the flash unit incorporates high-voltage circuits, take electric charge prevention measures such as discharging capacitor, and take great care when perform ng work.

Information:

The flash unit is a component with the flash and circuit board. blocks connected.

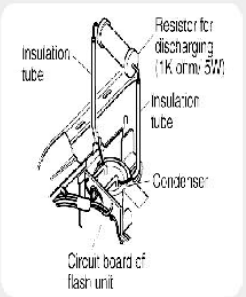
1) Remove the screw [B], and then remove the flash block.

2) Remove the screw [F], and then remove the circuit board block.

Caution

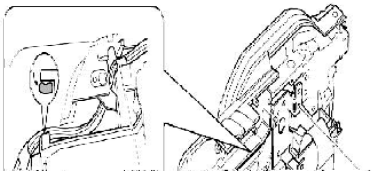
Be sure to discharge the capacitor before disassembling.

⚠
1. Put the insulation tube on the lead part of resistor (ERG5SJ102: 1k ohm/5W).
2. Put the resistor between both terminals of capacitor for approx. 10 seconds.



Caution during disassembly and reassembly:

Secure the cables of flash unit (between the flash and circuit board blocks) as shown in the figure.



(16) R Cover [VDR-M95/M75/M55/M53]

1) Remove the screw [F].
2) Move the R cover in the direction of the arrow to release the tab.
3) Remove the R cover in the direction of the arrow.

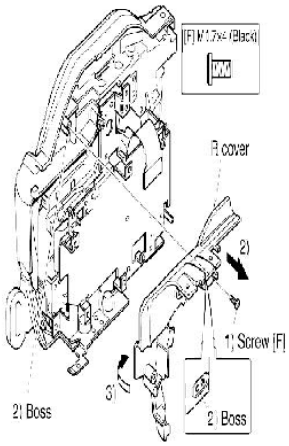


Fig. 9-8-16

(17) R Case, Frame, Disc Drive Unit and DRF-H/DRF-M/DRF-P Circuit Board

[VDR-M95/M75/M55/M53]

1) Disconnect the flat cable.

2) Remove the two screws [C].

3) Remove the two screws [F], and then remove the R case.

4) Remove the three screws [G], and then remove the frame.

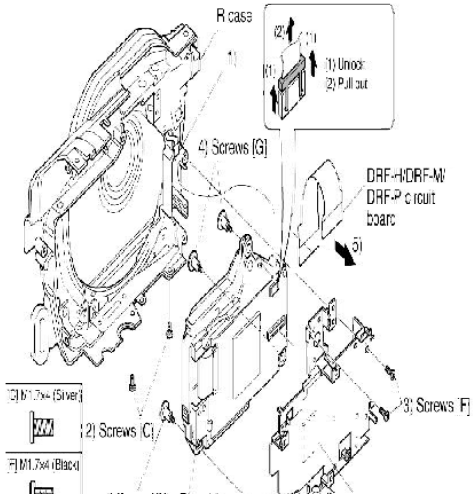
5) Remove the DRF-H/DRF-M/DRF-P circuit board from the circuit board in disc drive unit in the direction of the arrow.

Note

The disc drive unit is a precision component. Take great care when handling it. Do not subject the disc drive unit to any impact. Doing so could cause a fault.

Caution during disassembly and reassembly:

Be sure to paste the heat sink rubber. Neglecting this could cause a fault.



(18) Lock Unit [VDR-M95/M75/M55/M53]

1) With the disc insertion block closed, remove the screw [F].

2) Move the lock slider in the direction of the arrow to open the disc insertion block.

3) Remove the four screws [D].

Caution during disassembly and reassembly:

Be sure to close the disc insertion block before tightening the screw on the switch of lock unit tcf, and make sure that the switch is attached as shown in the figure. Screwing the switch with the disc insertion block open could damage it.

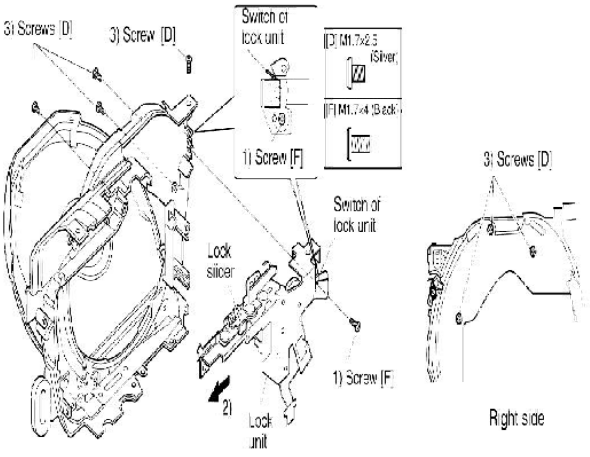


Fig. 9-3-18

(19) Adjustment Cover, L Case and LCD Unit [VDR-M95/M75/M55/M53]

1) Insert a fine-tipped flat-bladed screwdriver into the groove in adjustment cover, and remove the cover from L case in the direction of the arrow. Be very careful not to

(20) LCD Case U and Fulcrum Unit: [VDR-M95/M75/M55/M53]

1) Turn the fulcrum unit 90° in the direction of the arrow.

2) Remove the three screws [C].

3) Release the six tabs and remove the LCD case U in the direction of the arrow, taking care not to lose the MR sheet, which will be detached at this time.

4) Release the connection between the LCD circuit board and MR circuit board.

5) Remove the MR circuit board in the direction of the arrow. The MR circuit board is a film-like board: Do not forcibly fold or bend it.

6) Disconnect the flat cable.

7) Remove the fulcrum unit in the direction of the arrow.

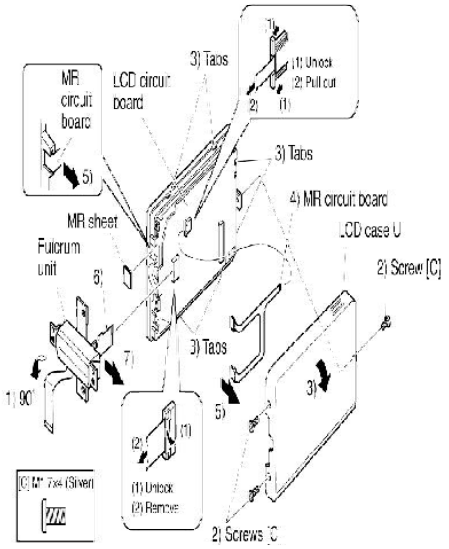


Fig. 9-3-20

(21) LCD Case B [VDR-M95/M75/M55/M53]

1) Remove the LCD case B in the direction of the arrow.

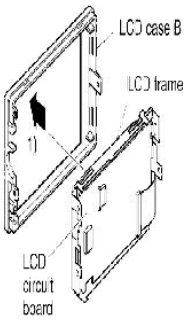


Fig. 9-3-21a

Note

If the LCD circuit board, mirror sheet, light guide plate, diffusion sheet, prism sheets, monitor sheet or LCD panel become detached from the LCD frame, assemble them as shown below.

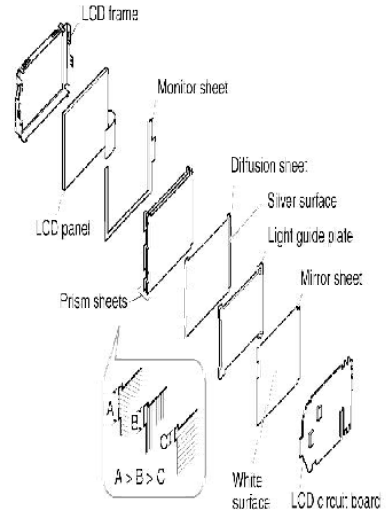


Fig. 9-3-21c

(22) AVJ-H/AVJ-M/AVJ-P Circuit Board [VDR-M95/M75/M55/M53]

1) Remove the screw [F], taking care not to lose the ground plate, which will be detached at this time.
2) Remove the AVJ-H/AVJ-M/AVJ-P circuit board from jack holder in the direction of the arrow.

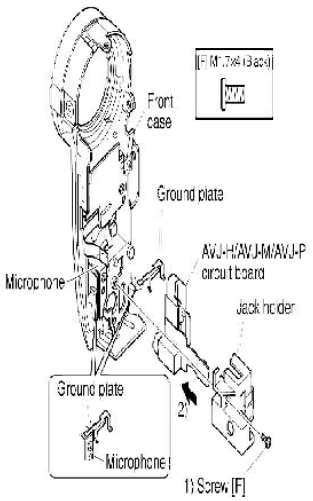
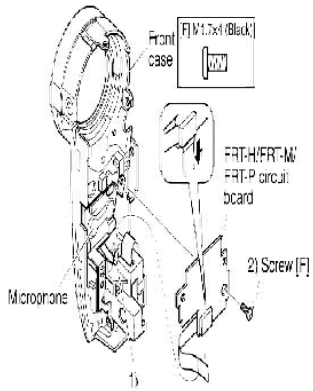


Fig. 3-3-22

(23) FRT-H/FRT-M/FRT-P Circuit Board [VDR-M95/M75/M55/M53]

1) Release the connection between the microphone and FRT-H/FRT-M/FRT-P circuit board.
2) Remove the screw [F].



(25) GSL-H Circuit Board, CCD Image Sensor, Lens Unit, Cushion, Crystal Filter and Lens Frame [VDR-M95]

1) Disconnect the flat cable.

2) Unsolder the 18 points at the CCD image sensor terminal on GSL-H circuit board.

3) Remove the two screws [M].

4) Remove the two screws [H], and then remove the lens frame, CCD image sensor, lens unit, cushion (d) and crystal filter.

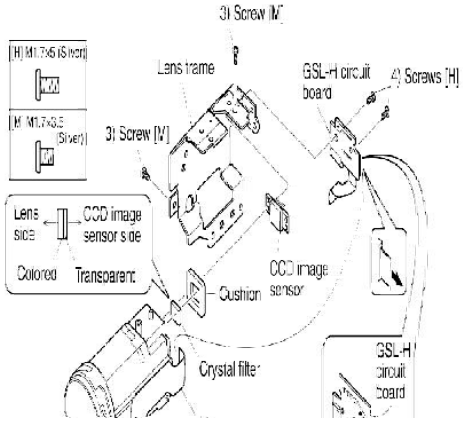
Note

1) The CCD image sensor, lens unit and crystal filter are precision components. Take great care when handling them. Adherence of any dust, foreign object, fingerprint, etc. to them, or any scratches or impact, could cause a fault.

2) Never use metal tweezers to handle the crystal filter. Doing so could damage it.

Cautions during disassembly and reassembly:

Take care with the orientation of crystal filter when assembling it. Incorrect orientation of the crystal filter could cause a fault.



(26) Lens Frame, Lens Unit, Cushion and Crystal Filter [VDR-M75]

1) Disconnect the flat cable.

2) Remove the screw [E].

3) Turn the GSL-M circuit board up in the direction of the arrow.

4) Remove the two screws [K] and then remove the lens frame.

5) Remove the two screws [J], and then remove the lens unit, cushion and crystal filter.

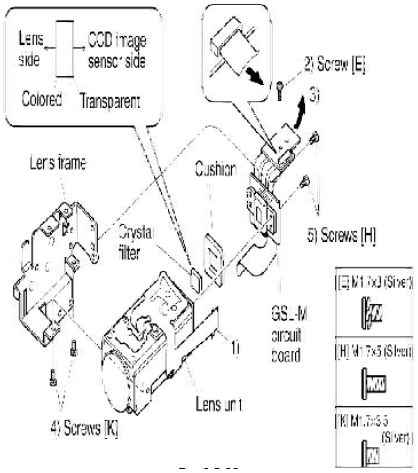
Note

1) The lens unit and crystal filter are precision components. Take great care when handling them. Adherence of any dust, foreign object, fingerprint, etc. to them, or any scratches or impact, could cause a fault.

2) Never use metal tweezers to handle the crystal filter. Doing so could damage it.

Caution during disassembly and reassembly

Take care with the orientation of crystal filter when assembling it. Incorrect orientation of the crystal filter could cause a fault.



(28) GSL-L Circuit Board, Lens Frame and Lens Unit [VDR-M55/M53]

1) Remove the two screws [E].

2) Disconnect the flat cable.

3) Disconnect the flat cable.

4) Remove the two screws [B] and remove the lens frame from the lens unit.

Note:
The lens unit is precision components. Take great care when handling them. Adherence of any dust, foreign object, fingerprint, etc. to them, or any scratches or impact, could cause a fault.

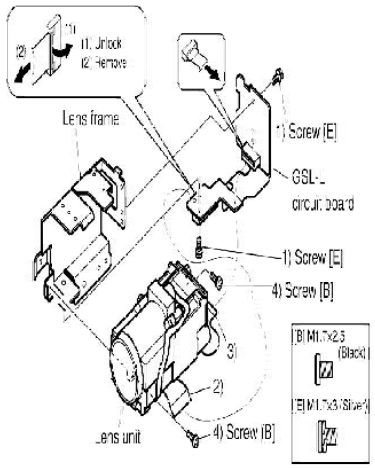


Fig. 5-3-28

10. Adjustment

10.1. Creating Reference Data

The reference data is necessary for adjustment. The adjustment program will not operate normally without it. Before adjustment, be sure to create the reference data, using the same model (unit)

10.1.1. List of jigs and Tools used when Creating Reference Data

NEW Adjustment software Note: Create the data using the adjustment data downloaded from CS HP.	**NEW** Halcyon connector VFK1965
Personal computer (PC) Computer on which any of the following OS operates and which has a floppy disk drive and RS-232C terminal OS: Windows 95/98/98 Second Edition/Me/2000 Professional/XP/NT4.0	
CIE light balancing filter VFK1164L3B12	DSP-R jig VFK1873
RS-232C cable (9-pin or 25-pin straight type) [Generally available] Check the number of pins of RS-232C terminals on PC and DSP-R jig and the shapes (male/female) before purchasing.	AWS input/output or output cable [Accessory]	AC adapter/charger [Accessory]
Power cable for AC adapter/charger [Accessory]	DC power cord [Accessory]	Light box (with DC cable) VFK1164TDVLB
Collimator VFK1164TCM02 [For autofocus adjustment]	Step-up ring VFK1962: 34mm - 35mm (For VCR-M95/M55/M53) VFK1164TAR3A: 30.5mm - 33mm

10.1.2. Power Supply and Materials for Creating Reference Data

10.1.3. Connecting when Creating Reference Data

Connect the DVD video camera/recorder for creating reference data), jigs and test equipment as shown in Fig. 10-1-1.

> **Caution**
>
> ⚠ It is very dangerous to perform any work with the DVD video camera/recorder disassembled, since the DVD video camera/recorder has a laser-emitting block and high-voltage circuits. Do not remove any parts other than the adjustment cover.

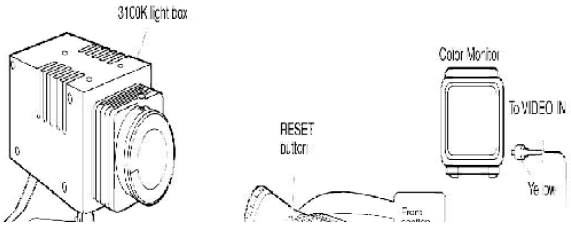
(1) Setting and disassembly of DVD video camera/recorder

1) Open the LCD monitor and insert a fine-tipped flat-bladed screwdriver into the groove in adjustment cover, and remove the cover from L case in the direction of the arrow. Be very careful not to scratch the cover or L case with screwdriver.

2) Set the lens surface of DVD video camera/recorder in parallel with the surface of light box as far as possible, and adjust the focus.

3) Use a small tripod to fix the DVD video camera/recorder, making certain it does not move during creation of reference data.

> Note
>
> Always connect the Halcyon connector before connecting the DC power cord to the DVD video camera/recorder. Connecting the Halcyon connector after powering the DVD video camera/recorder could cause a fault.



10.1.4. Settings when Creating Reference Data

When the connections for creating reference data are complete, set the DVD video camera/recorder and test equipment as follows:

1) Make sure that no disc or card is inserted. Neither is necessary when creating reference data.

2) Set the power switch to "VIDEO". After that operate the DVD video camera/recorder while watching the LCD monitor screen.

3) Press the MENU button to display the camera function setup screen.

4) Use the ⏮ / ⏭ / ⏪ / ⏩ buttons to choose "Initial Setup", and then press the ⏯ button.

5) Use the ⏮ / ⏭ / ⏪ / ⏩ buttons to choose "Reset", and then press the ⏯ button.

6) Use the ⏮ / ⏭ / ⏪ / ⏩ buttons to choose "YES", and then press the ⏯ button.

7) When reset is complete, use the above procedure to operate the ⏮ / ⏭ / ⏪ / ⏩ buttons and set Demo Mode in the Initial Setup menu to "Off". Forgetting to set it to "Off" will cause a problem during creation of reference data.

8) Press the MENU button to restore the normal display.

Information

The following table shows the menu status after the above settings.

The settings for Date Setup are not shown in the table below, since they do not have any meaning when creating reference data.

Item	Setting	Item	Setting
Camera Functions Setup		LCD/EVF Setup	
Program AE	Auto	LCD Brightness	
White Bal.	Auto	EVF Brightness	
EIS	On	Color Level	
Dig. Zoom	×40	EVF Display	Auto
NEC Filter	Off	Initial Setup	
Flash*1	Auto	Beep	On
Recording Functions Setup		Power Save	Off
VIDEO Mode	FINE	Record LED	On
Quality	FINE	Language	English

10.1.5. Copying or Deleting Adjustment Program

Information:
The program for creating reference data is included in the adjustment program.

(1) Copy

1) Start the PC.

2) Start Explorer and create a new folder in HDD of PC. The name "map05w" is recommended for the folder. If a folder with the same name exists, give the folder a similar name that is easily understandable.

Note:
Be sure to manage the adjustment programs for Windows and MS-DOS in different folders. Managing them in the same folder will interfere with adjustment.

3) Copy all the folders and files on adjustmen. floppy disk to the map05w folder.

(2) Deleting

If it is necessary to delete the adjustment program from hard disk drive (HDD) of PC, delete the map05w folder that was created during storage.

10.1.6. Starting and Terminating Reference Data Creation Program

Make sure that the connections are correct, the power switch on DVD video camera/recorder is set to "VIDEO", and the DC power supply for DSP-R jig is turned on. The reference data creation program will not start unless the connections for creating reference data are correct, and the DVD video camera/recorder or DSP-R jig is powered.

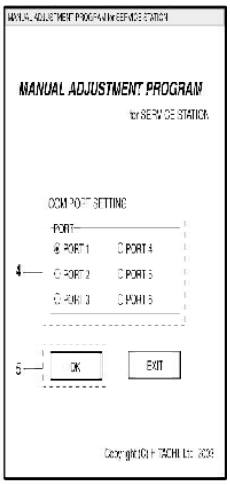
For subsequent operation, operate the PC mouse while watching the PC monitor screen.

Information:
1) Display xxxx on subsequent PC screen shows the model name.
2) The numbers on PC screens show the operational procedure.

4) Choose the communication port to which the RS-232C cable is connected, and then choose the radio button of corresponding port on COMMUNICATION PORT SETTING screen.

5) Click the OK button on the COMMUNICATION PORT SETTING screen, and then proceed with the MODEL SELECT screen.

COMMUNICATION PORT SETTING screen



Note:

If the following dialogs appear, perform the troubleshooting below.

POWER OR CONNECTION ERROR dialog

COM PORT ERROR dialog

When the power or connection error dialog appears:

A connection is incorrect or power is not turned on.

Make sure that all connections are correct and that power is supplied to the reference data creating device or DSP-R interface jig.

Clicking the OK button will finish the program.

After solving the problem, restart the program.

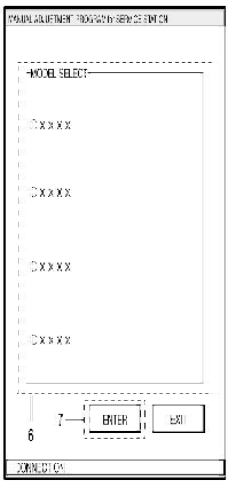
When the communication port error dialog appears:

6) Choose the radio button of corresponding model name in MODEL SELECT screen.

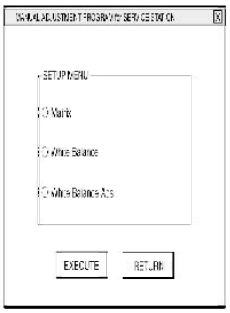
7) Click the ENTER button in MODEL SELECT screen, and then proceed with the SETUP MENU screen. Refer to next item for subsequent operations.
If there is an error in model selection, the FILE HANDLE ERROR dialog will appear. Click the OK button, and then choose the correct model.

Note:
If the FILE HANDLE ERROR dialog appears when the correct model has been chosen, obtain (download) the newest adjustment program, and then start over again. If the FILE HANDLE ERROR dialog still appears with the newest adjustment program, check with the factory.

MODEL SELECT screen.



SETUP MENU screen



FILE HANDLE ERROR dialog

10.1.7. Creating Reference Data

Start the setup program.

For subsequent operation, operate the PC mouse while watching the PC monitor screen.

Information:

It takes approx. 20 minutes to create reference data.

The following shows the times required for each item:

Matrix: Approx. 10 minutes

White Balance: Approx. 15 minutes

White Balance Aoa: Approx. 30 seconds

Preparation:

1) Point at light box without chart, filling the screen.

2) Prepare the C12 light balancing filter (step-up ring).
Attach it during setup.

Procedure:

1) Choose MATRIX on the SETUP MENU screen.

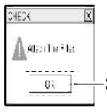
2) Click the EXECUTE button on SETUP MENU screen to start setup.

3) The ATTACH THE FILTER dialog will appear during setup. Attach the C12 light balancing filter over the lens of DVD video camera/recorder, and then click the OK button in ATTACH THE FILTER dialog.

4) The REMOVE THE FILTER dialog will appear during setup.
Remove the C12 light balancing filter from the lens of DVD video camera/recorder, and then click the OK button in REMOVE THE FILTER dialog.
After that, the ATTACH THE FILTER dialog and REMOVE THE FILTER dialog may occasionally appear. Reattach the C12 light balancing filter and remove it each time.

SETUP MENU screen.

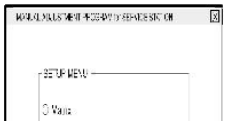
ATTACH THE FILTER dialog



REMOVE THE FILTER dialog

SETUP FINISHED dialog

SETUP MENU screen.



8) Choose WHITE BALANCE ABS on the SETUP MENU screen.

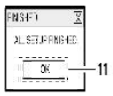
9) Repeat steps 2)-5).

10) Click the RETURN button on SETUP MENU screen.

11) The ALL SETUP FINISH dialog will appear. Click the OK button to complete the creation of reference data.

SETUP MENU screen.

ALL SETUP FINISH dialog



Note

Neither Matrix, White Balance nor White Balance Abs in SETUP MENU can be executed independently. Be sure to execute all items at the same time.

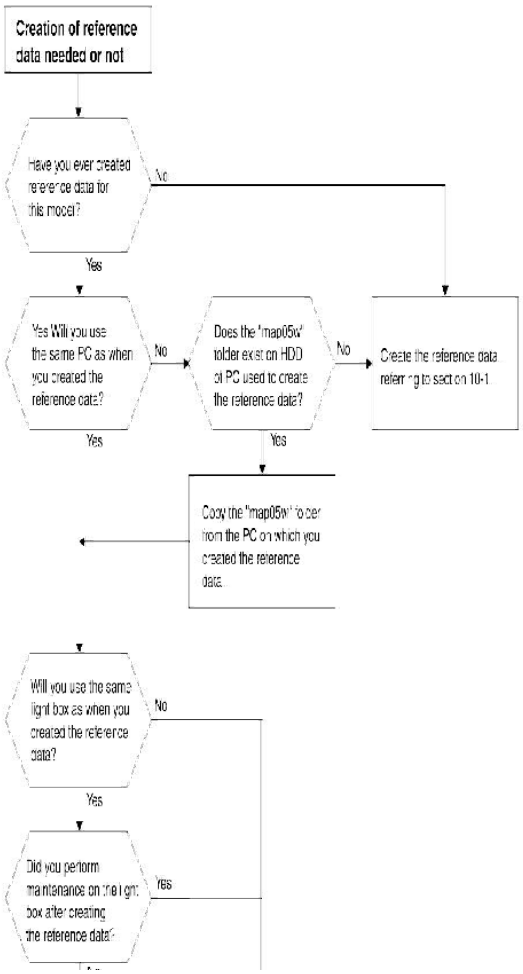
If you click the RETURN button on the SETUP MENU screen with an unfinished item, the EXECUTE OTHER ITEMS dialog will appear. Click the OK button in EXECUTE OTHER ITEMS dialog, and then execute the unfinished items.

EXECUTE OTHER ITEMS dialog

10.2. Setups for Adjustment

10.2.1. Checking Reference Data

Before starting adjustment, check whether it will be necessary to create the reference data or not, referring to the flowchart below:


Creation of reference data needed or not
Have you ever created reference data for this model?
No
Yes
Yes Will you use the same PC as when you created the reference data?
No
Does the "map05w" folder exist on HDD of PC used to create the reference data?
No
Create the reference data referring to section 10-1
Yes
Copy the "map05w" folder from the PC on which you created the reference data.
Will you use the same light box as when you created the reference data?
No
Yes
Did you perform maintenance on the light box after creating the reference data?
Yes

10.2.2. List of Jigs and Tools for Adjustment

Same as when creating reference data: Refer to "10-1-1 List of jigs and tools when creating reference data" for details.

1) Personal computer
2) Adjustment software
3) Halcyon connector
4) C12 light balance filter
5) DSP-R Jig
6) RS-232C cable
7) AV/S input/output cable
8) AC Adapter/Charger
9) Power cable
10) DC power cord

10.2.3. Test Equipment, Power Supply and Charts for Adjustment

1) Color chart
2) 3100 K light box (maintenance is necessary)
3) Focus chart
4) Color monitor (color TV with AV input jacks)
5) Oscilloscope
6) Vectorscope
7) Digital voltmeter
8) Frequency counter
9) DC power supply for DSP-R jig (5 V/1 A)
10) DC power supply for 3100K light box (12 V/1.7 A)
11) Collimator

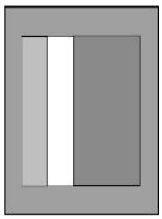


Fig. 10-2-2 Color Chart

Information:

It is recommended that you use a vectorscope when performing the chroma gain adjustment. You can use an oscilloscope instead. Note, however, that

10.2.4. Connections for Adjustment

(1) Setting and disassembly of DVD video camera/recorder

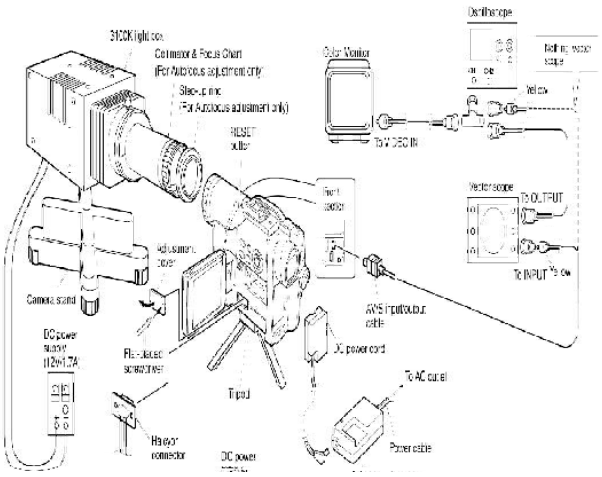
1) Open the LCD monitor and insert a fine-tipped flat-bladed screwdriver into the groove in adjustment cover, and remove the cover from L case in the direction of the arrow. Be very careful not to scratch the cover or L case with screwdriver.

2) Set the lens surface of DVD video camera/recorder in parallel with the surface of light box as far as possible, and adjust the focus.

3) Use a small tripod to fix the DVD video camera/recorder, making certain it does not move during creation of reference data.

4) Be sure to connect the video output of DVD video camera/recorder to the video input jack of color monitor, which is usually terminated by 75 ohm. If the video output is not terminated by 75 ohm, the video output value cannot be measured correctly.

> **Note**
>
> Always connect the Halcyon connector before connecting the DC power cord to the DVD video camera/recorder. Connecting the Halcyon connector after powering the DVD video camera/recorder could cause a fault.



10.2.5. Setting for Adjustment

When the connections for adjustment are complete, set the DVD video camera/recorder and test equipment as follows.

(1) Setting the DVD video camera/recorder

> Information:
> This item is the same as when creating reference data.

1) Make sure that no disc or card is inserted. Neither is necessary when creating reference data.
2) Set the power switch to "VIDEO". After that operate the DVD video camera/recorder while watching the LCD monitor screen.
3) Press the MENU button to display the camera function setup screen.
4) Use the ⏮ / ⏭ / ◀◀ / ▶▶ buttons to choose "Initial Setup" and then press the ▶/II button.
5) Use the ⏮ / ⏭ / ◀◀ / ▶▶ buttons to choose "Reset", and then press the ▶/II button.
6) Use the ⏮ / ⏭ / ◀◀ / ▶▶ buttons to choose "YES", and then press the ▶/II button.
7) When reset is complete, use the above procedure to operate the ⏮ / ⏭ / ◀◀ / ▶▶ buttons and set Demo Mode in the Initial Setup menu to "Off". Forgetting to set it to "Off" will cause a problem during creation of reference data.
8) Press the MENU button to restore the normal display.

> Information:
> The following table shows the menu status after the above settings.
> The settings for Date Setup are not shown in the table below, since they do not have any meaning when creating reference data.

Item	Setting	Item	Setting
Camera Functions Setup		LCD/EVF Setup	
Program AE	Auto	LCD Brightness	
White Bal.	Auto	EVF Brightness	
EIS	On	Color Level	

(2) Setting test equipment

The names of switches, etc. of test equipment may vary depending on the manufacturer and model. Some switches in addition to those shown below may have to be set. See the instruction manual of test equipment for details.

1) Oscilloscope

a) Probe:	10:1
b) TIME/DIV:	10 or 20 μs (except where some other designation is given)
c) VOLTS/DIV:	Change depending on the measurement object.
d) TRIGGER SOURCE:	CH1 (except where some other designation is given)
e) AC/DC/GND:	AC

2) Vectorscope

a) SATURATION:	75%

10.2.6. Starting and Terminating Adjustment Program

Make sure that the connections are correct, the power switch on DVD video camera/recorder is set to "VIDEO", and the DC power supply for DSP-R jig is turned on. The adjustment program will not start unless the connections for adjustment are correct, and the DVD video camera/recorder or DSP-R jig is powered.

Information:

1) Display ××××× on subsequent PC screen shows the model name.

2) The numbers on PC screens show the operational procedure.

(1) Start

1) Start the PC. If the PC has already started, terminate all other applications.

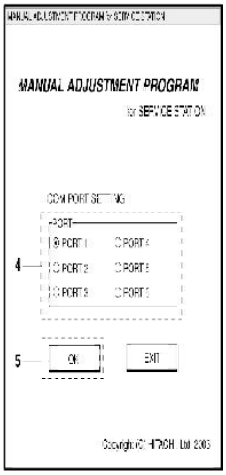
2) Start Explorer, and double-click the "MAP2005W.EXE" file in map05w folder to start the adjustment program.

3) Once the adjustment program has started, the COMMUNICATION PORT SETTING screen will appear.

4) Check the communication port to which the RS-232C cable is connected, and then choose the radio button of corresponding port on COMMUNICATION PORT SETTING screen.

5) Click the OK button on the COMMUNICATION PORT SETTING screen, and then proceed with the MODEL SELECT screen.

COMMUNICATION PORT SETTING screen



Note:

If the dialogs on right appear, perform the following troubleshooting:

When the power or connection error dialog appears:

POWER OR CONNECTION ERROR dialog

Information:

When communications between the PC and DVD video camera/recorder are normal during adjustment, the word "CONNECTION" in status bar (bottom left) of each screen will flash.

6) Choose the radio button of corresponding model name in MODEL SELECT screen.

7) Click the ENTER button in MODEL SELECT screen, and then proceed with the ADJUST MENU screen.

Start of the adjustment program is now complete. Refer to "6-4 Adjustment Procedure" for subsequent operations.

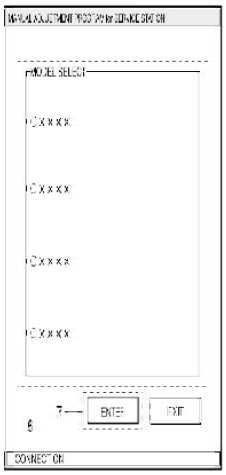
If there is an error in model selection, the FILE HANDLE ERROR dialog will appear. Click the OK button, and then choose the correct model.

Note:

If the FILE HANDLE ERROR dialog appears when the correct model has been chosen, obtain (download) the newest adjustment program, and then start over again.

If the FILE HANDLE ERROR dialog still appears with the newest adjustment program, check with the factory.

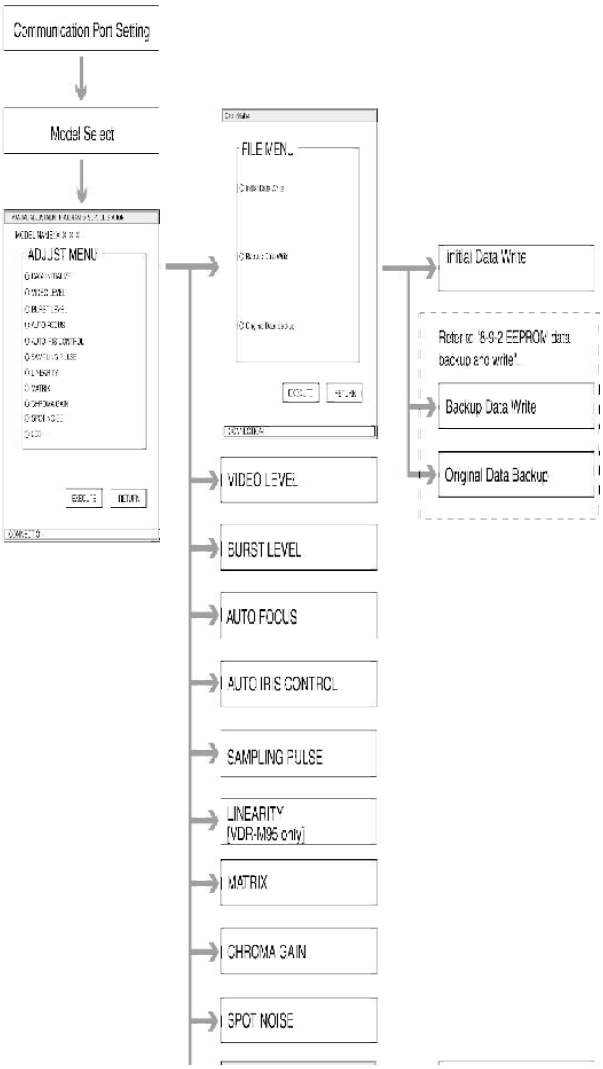
MODEL SELECT screen.



ADJUST MENU screen.

10.3. List of Adjustment Items

10.3.1. Adjustment Program Hierarchy Diagram



10.3.2. List of Adjustment Needed After Replacing Major Components

Item	Major Components			
	MAN circuit board *1 (EEPROM backup data already written)	MAN circuit board *1 (EEPROM data backup disabled) *2	AEL circuit board	LCD unit
Initial Data Write		●		
Video Level	●	●	●	
Burst Level	●	●	●	
Autofocus		●		
Auto Iris Control	●	●		
Sampling Pulse	●	●		
Linearity *3	●	●		
Matrix		●		
Chroma Gain		●		
Spot Noise		●		
LCD PLL	●	●		●
LCD Contrast-1 *4	●	●		●
LCD Bright *4	●	●		●
LCD Contrast-2 *4	●	●		●
LCD White Balance	●	●		●

*1: Be sure to perform "8-9-2 EEPROM data backup and write" before replacing the MAN circuit board.

*2: "EEPROM data backup disabled" refers to when the backup of EEPROM data from the MAN circuit board to be replaced could not be properly executed due to some fault such as the DVD video camera recorder not being turned on, etc.

*3: VDR-M95 only

*4: The following three items cannot be performed singly. Be sure to perform these adjustments as a set with the three items, and in the order stated:

LCD contrast – 1

LCD bright

LCD contrast – 2

Item	Major Components		
	Lens Unit	IC1001 (CCD image sensor)	IC6301

10.3.3. Purpose of Adjustment and Incompleted Phenomenon

Item	Purpose	Incomplete Phenomenon
Initia. Data Write	To write initial data to EEPROM in which adjustment data has been stored	.....
Video Level	To set the video output level.	The picture becomes dark or whitish.
Burst Level	To set the burst level.	
Autofocus	To set out of focus correction level during zoom.	Focus is lost during zooming. It takes time until a subject is brought into focus, or correct focus is not obtained.
Auto Iris Control	To set iris control data.	The picture becomes too bright or dark.
Sampling Pulse	To measure the delay time in sampling IC, and optimize pulse timing.	Diagonal bears and horizontal noise occur.
Linearity	Adjustment item exclusively for VDR-M95: Procedure is to match the levels of two-system CCD image sensor outputs.	The brightness (luminance levels) differ on the left and right of screen bounded at the center.
Matrix	To compensate for unevenness in the chroma signal and input auto white balance control data.	Color reproduction becomes defective.
Chroma Gain	To set color saturation for the reference color temperature.	Color of the picture is denser or lighter than that of the subject.
Spot Noise	To correct spot noise.	Spot noise occurs.
LCD PLL	To synchronize LCD image.	Synchronization of LCD image is distorted.
LCD Contrast-1	To set the bright level and contrast of the LCD monitor.	Color reproduction becomes defective of the LCD monitor.
LCD Bright		
LCD Contrast-2		
LCD White Balance		

10.4. Adjustment Procedure

Start the adjustment program referring to "10-2-6 Starting and Terminating Adjustment Program".
For the subsequent operation, operate the PC mouse while watching the PC monitor screen.

Information:
1) Display ××××on subsequent PC screen shows the model name.
2) The numbers on PC screens show the operational procedure.

10.4.1. Initial Data Write

Note

1) Write the initial data only after the MAN circuit board has been replaced when the backup of EEPROM data could not be performed using the MAN circuit board before replacement.
Refer to "8-9-2 EEPROM data backup and write" for backup of EEPROM data.

2) Writing the initial data will initialize all the adjustment data in EEPROM. After writing, be sure to perform all the appropriate adjustments.

Procedure:

1) Choose DATA INITIALIZE on the ADJUST MENU screen.

2) Click the EXECUTE button on ADJUST MENU screen to proceed with the DATA INITIALIZE MENU screen.

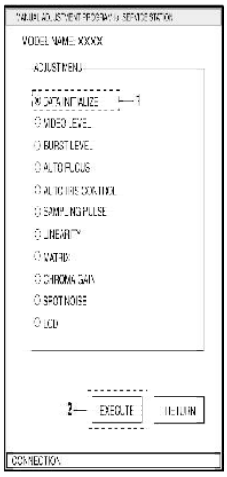
3) Choose Initial Data Write on the DATA INITIALIZE MENU screen.

4) Click the EXECUTE button on DATA INITIALIZE MENU screen to start writing of initial data.
The progress status can be confirmed using the PROGRESS STATUS dialog.

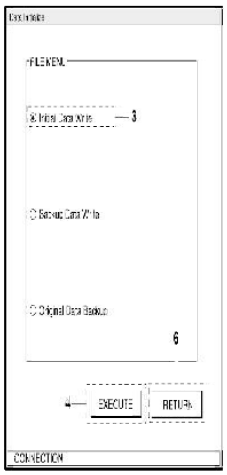
5) When writing is complete, the INITIALIZATION FINISHED dialog will appear. Click the OK button in dialog to restore the DATA INITIALIZE MENU screen.

6) Click the RETURN button on DATA INITIALIZE MENU screen to restore the ADJUST MENU screen, and then be sure to perform all the adjustment items.

ADJUST MENU screen



DATA INITIALIZE MENU screen



PROGRESS STATUS dialog

10.4.2. Video Level

Preparations

1) Connect the oscilloscope CH1 to video out.

2) Switch the oscilloscope V-MODE to "CH1" and TRIGGER SOURCE to "CH1".

Procedure:

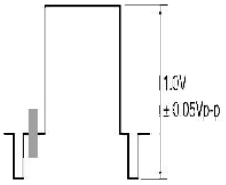
1) Choose VIDEO LEVEL on the ADJUST MENU screen.

2) Click the EXECUTE button on ADJUST MENU screen to proceed with the VIDEO LEVEL ADJUSTMENT screen.

3) Click the UP or DOWN button so that level of waveform is 1.0 ± 0.05 Vp-p. Click the button at approx. 2-second intervals while checking any increase or decrease in level of waveform.

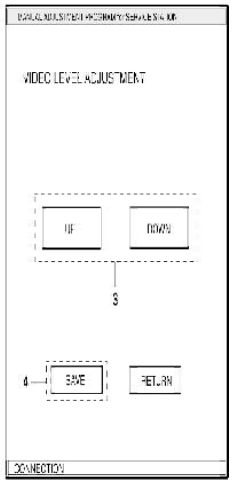
4) After step 3) is complete, be sure to click the SAVE button.
Note that clicking the RETURN button will restore the ADJUST MENU screen to the status before the adjustment was performed.

5) When save is complete, the ADJUSTMENT FINISHED dialog will appear. Click the OK button in dialog to restore the ADJUST MENU screen.



ADJUST MENU screen

VIDEO LEVEL ADJUSTMENT screen



ADJUSTMENT FINISHED dialog

10.4.3. Burst Level

Preparations:

1) Connect the oscilloscope CH1 to video out.

2) Switch the oscilloscope V-MODE to "CH1" and TRIGGER SOURCE to "CH1".

Procedure:

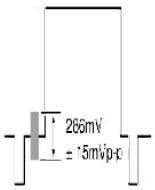
1) Choose BURST LEVEL on the ADJUST MENU screen.

2) Click the EXECUTE button on ADJUST MENU screen to proceed with the BURST LEVEL ADJUSTMENT screen.

3) Click the UP or DOWN button so that burst level of the waveform is 286mV ± 15 mVp-p. Click the button at approx. 2-second intervals while checking any increase or decrease in burst level.

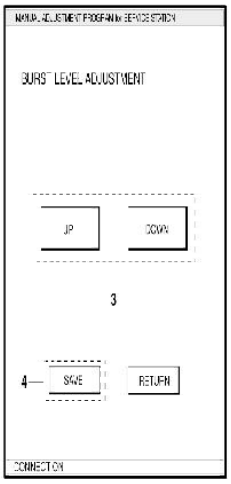
4) After step 3) is complete, be sure to click the SAVE button.
Note that clicking the RETURN button will restore the ADJUST MENU screen to the status before the adjustment was performed.

5) When save is complete, the ADJUSTMENT FINISHED dialog will appear. Click the OK button in dialog to restore the ADJUST MENU screen.



ADJUST MENU screen

BURST LEVEL ADJUSTMENT screen



ADJUSTMENT FINISHED dialog

10.4.4. Autofocus

Preparations:

1) Set the collimator attached with focus chart in front of the camera.

2) Set the zoom to telephoto end, and make sure that the center of focus chart appears.

Procedure:

1) Choose AUTO FOCUS on the adjustment menu screen.

2) Click the EXECUTE button on ADJUST MENU screen to start adjustment.

3) When adjustment is complete, the ADJUSTMENT FINISHED dialog will appear. Click the OK button in dialog to restore the ADJUST MENU screen.

If the AF ADJUSTMENT ERROR dialog appears, click the OK button in dialog, perform the following troubleshooting, and then execute readjustment.

a) Check the illumination.

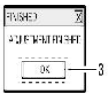
Confirm supplied voltage 12V ± 0.5V to the light box.

b) Check the collimator which has no dust or any dirt onto the surface of it.

If the AF adjustment error dialog still appears even after troubleshooting, the connection of lens unit may be incorrect or the unit may be faulty.

ADJUST MENU screen

ADJUSTMENT FINISHED dialog



AF ADJUSTMENT ERROR dialog

10.4.5. Auto Iris Control

Preparation:

Set zoom to wide-angle end, and point at light box without

ADJUST MENU screen

10.4.6. Sampling Pulse

Note

Start this adjustment after the circuit operation is stabilized, e.g., after leaving the DVD video camera/recorder for at least one hour at normal temperature, and then starting within 90 seconds after turning it on. Unstable circuit operation will cause improper adjustment.

Preparation:

Cap the lens of DVD video camera/recorder.

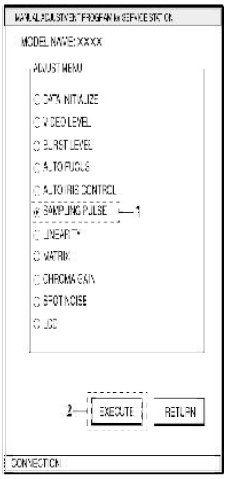
Procedure:

1) Choose SAMPLING PULSE on the ADJUST MENU screen.

2) Click the EXECUTE button on ADJUST MENU screen to start adjustment.

3) When adjustment is complete, the ADJUSTMENT FINISHED dialog will appear. Click the OK button in dialog to restore the ADJUST MENU screen.

ADJUST MENU screen



ADJUSTMENT FINISHED dialog

10.4.7. Linearity [VDR-M95 only]

Preparation:

Set zoom to wide-angle end, and point at light box without chart, filling the screen.

Procedure:

1) Choose LINEARITY on the ADJUST MENU screen.

2) Click the EXECUTE button on ADJUST MENU screen.

ADJUST MENU screen

10.4.8. Matrix

Preparation:

1) Point at light box without chart, filling the screen.

2) Prepare the C12 light balancing filter (step-up rings). Attach it during adjustment.

Procedure:

1) Choose MATRIX on the ADJUST MENU screen.

2) Click the EXECUTE button on ADJUST MENU screen to start adjustment.
The progress status can be confirmed using the PROGRESS STATUS dialog.

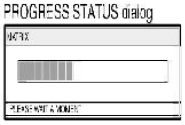
3) The ATTACH THE FILTER dialog will appear during setup.
Attach the C12 light balancing filter over the lens of DVD video camera/recorder, and then click the OK button in ATTACH THE FILTER dialog.

4) The REMOVE THE FILTER dialog will appear during setup.
Remove the C12 light balancing filter from the lens of DVD video camera/recorder, and then click the OK button in REMOVE THE FILTER dialog.
After that, the ATTACH THE FILTER dialog and REMOVE THE FILTER dialog may occasionally appear. Reattach the C12 light balancing filter and remove it each time.

5) When adjustment is complete, the ADJUSTMENT FINISHED dialog will appear. Click the OK button in dialog to restore the ADJUST MENU screen.

ADJUST MENU screen

PROGRESS STATUS dialog



ATTACH THE FILTER dialog

REMOVE THE FILTER dialog

ADJUSTMENT FINISHED dialog

10.4.9. Chroma Gain

Preparation

1) Point at light box without chart, filling the screen

2) Prepare the color bar chart: Use it during adjustment.

Procedure:

1) Press the MENU button on DVD video camera/recorder, and ⏮ / ⏭ / ◀◀ / ▶▶ buttons to specify "White Bal.: Set" to display the white balance screen. (See Fig. 10-4-3)

2) Press the ⏯ button. The "🔳" mark on the white balance setting screen will blink. Hold down the button until the "🔳" mark changes to a steady light.

3) Press the STOP/CANCEL button on DVD video camera/recorder.

4) Insert the color bar chart into light box and point the DVD video camera/recorder at the chart so that it fills the screen

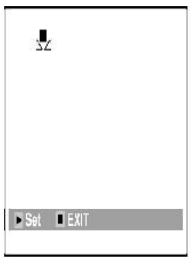


Fig. 10-4-3 White balance set screen

5) Choose CHROMA GAIN on the ADJUST MENU screen.

6) Click the EXECUTE button on ADJUST MENU screen to proceed with the CHROMA GAIN ADJUSTMENT screen.

ADJUST MENU screen

7) Click the GAIN UP or GAIN DOWN button in ROUGH ADJUSTMENT box so that the value of red vector or red level approaches that in Table 10-4-1. Click the button at approx. 2-second intervals while checking the increase or decrease of vector or level.

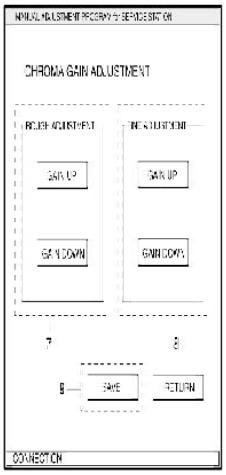
8) Click the GAIN UP or GAIN DOWN button in FINE ADJUSTMENT box so that the value of red vector or red level matches that in Table 10-4-1. Click the button at approx. 2-second intervals while checking any increase or decrease in vector or level.

9) After step 8) is complete, be sure to click the SAVE button.
Note that clicking the RETURN button will restore the ADJUST MENU screen to the status before the adjustment was performed.

10) When save is complete, the ADJUSTMENT FINISHED dialog will appear. Click the OK button in dialog to restore the ADJUST MENU screen.

11) Press the MENU button on DVD video camera/recorder, and use the joystick to specify return to "White Bal. Auto".

CHROMA GAIN ADJUSTMENT screen



ADJUSTMENT FINISHED dialog

Table 10-4-1 Value of Red Level/Vector

Model	When using a vectorscope	When using an oscilloscope
VDR-M95	A = 240 % ± 5 %	B = 630mV ± 20 mVp-p
VDR-M75	A = 240 % ± 5 %	B = 630mV ± 20 mVp-p
VDR-M55/M53	A = 240 % ± 5 %	B = 630mV ± 20 mVp-p

10.4.10. Spot Noise

Information:

1) The SPOT NOISE adjustment compensates for bright points that appear on the screen, and these are caused by a defective pixel of CCD image sensor that may occur when DVD video camera/recorder is used under particular conditions or for a long time. Therefore, execute SPOT NOISE only in the following cases:

a) Pixel defect occurs in CCD image sensor and a bright point appears on screen.

b) CCD image sensor is replaced.

c) "Initial Data Write" is executed

2) The presence or absence of a bright point that appears on screen due to pixel defect on CCD image sensor can easily be judged by capping the lens. Use a CRT color monitor for this check.

Procedure:

1) Choose SPOT NOISE on the ADJUST MENU screen.

2) Click the EXECUTE button on ADJUST MENU screen to start adjustment.
When SPOT NOISE starts, the DVD video camera/recorder will automatically turn on again.

3) When adjustment is complete, the ADJUSTMENT FINISHED dialog will appear. Click the OK button in dialog to restore the ADJUST MENU screen.
If bright point still appears after adjustment is finished, the CCD image sensor may be faulty.

ADJUST MENU screen

ADJUSTMENT FINISHED dialog

10.4.11. LCD

Note

1) Perform LCD only after replacing the MAN circuit board, LCD circuit board or LCD unit, or executing "Initial Data Write".

2) Neither light box nor chart is needed for LCD adjustment.

Before performing any adjustments for LCD, be sure to shift the DVD video camera/recorder to the test mode using the procedure below, and then display the LCD ADJUSTMENT MENU.

Procedure:

1) Choose LCD on the ADJUST MENU screen.

2) Click the EXECUTE button on ADJUST MENU screen to shift the DVD video camera/recorder to the test mode. The progress status can be confirmed using the PROGRESS STATUS dialog.

3) When the DVD video camera/recorder has shifted to the test mode, the LCD screen will be black and white (see Fig. 10-4-7), and the LCD ADJUSTMENT MENU screen will appear on the PC monitor screen.

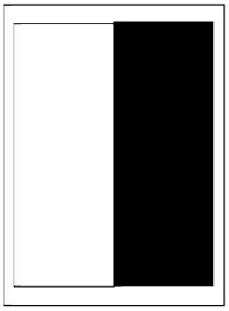
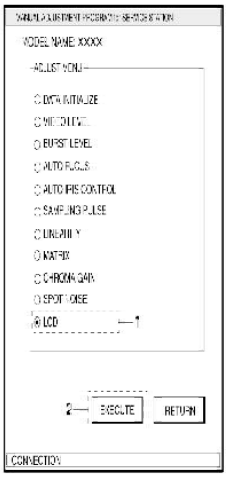
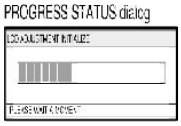


Fig. 10-4-7 LCD Monitor Screen

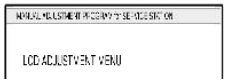
ADJUST MENU screen



PROGRESS STATUS dialog



LCD ADJUSTMENT MENU screen



(1) LCD PLL

Preparation

Connect the frequency counter to "LCD-HDG (pin 11)" of Halcyon connector.

Procedure:

1) Choose PLL on the LCD ADJUSTMENT MENU screen.

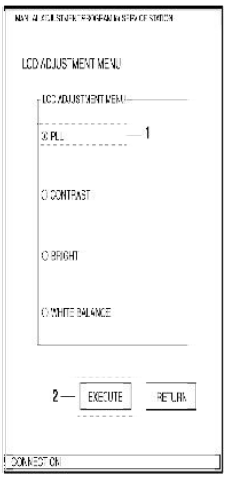
2) Click the EXECUTE button on LCD ADJUSTMENT MENU screen to proceed with the PLL ADJUSTMENT screen.
Synchronization of the video on LCD monitor screen will be off at this time, and the image will flow.

3) Click the UP or DOWN button so that the frequency is 15.734 kHz ± 0.1 kHz. Click the button at approx. 2-second intervals while checking the variation of frequencies.

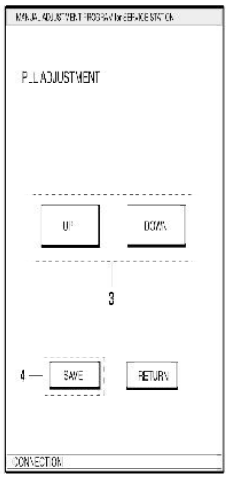
4) After step 3) is complete, be sure to click the SAVE button.
Note that clicking the RETURN button will restore the LCD ADJUSTMENT MENU screen to the status before the adjustment was performed.

5) When save is complete, the ADJUSTMENT FINISHED dialog will appear. Click the OK button in dialog to restore the LCD ADJUSTMENT MENU screen.

LCD ADJUSTMENT MENU screen



PLL ADJUSTMENT screen



ADJUSTMENT FINISHED dialog

(2) LCD Contrast-1

Note

Be sure to adjust LCD brightness and LCD contrast-2 after completing LCD contrast-1 adjustment.

Preparations:

1) Connect the oscilloscope CH2 to "LCD-G (pin 13)" of Halcyon connector.

2) Switch the oscilloscope V-MODE to "CH2". Leave the TRRIGER SOURCE in "CH1" as is.

Procedure

1) Choose CONTRAST on the LCD ADJUSTMENT MENU screen.

2) Click the EXECUTE button on LCD ADJUSTMENT MENU screen to proceed with the CONTRAST ADJUSTMENT screen.

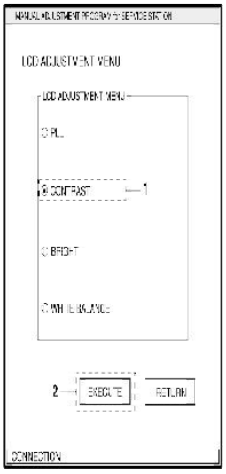
3) Click the UP or DOWN button so that the value of level A of waveform is 2.20V ± 0.02Vp-p. Click the button at approx. 2-second intervals while checking any increase or decrease in level A.

4) After step 3) is complete, be sure to click the SAVE button.

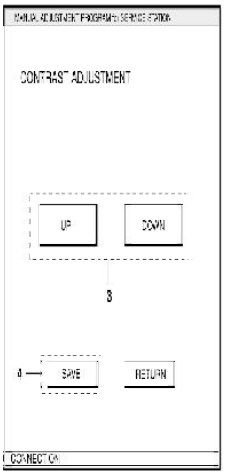
Note that clicking the RETURN button will restore the LCD ADJUSTMENT MENU screen to the status before the adjustment was performed.

5) When save is complete, the ADJUSTMENT FINISHED dialog will appear. Click the OK button in dialog to restore the LCD ADJUSTMENT MENU screen.

LCD ADJUSTMENT MENU screen



CONTRAST ADJUSTMENT screen



ADJUSTMENT FINISHED dialog

(3) LCD Brightness

Preparations:

1) Connect the oscilloscope CH2 to "LCD-G (pin 13)" of Halcyon connector.

2) Switch the oscilloscope V-MODE to "CH2". Leave the TRRIGER SOURCE in "CH1" as is.

Procedure:

1) Choose BRIGHT on the LCD ADJUSTMENT MENU screen.

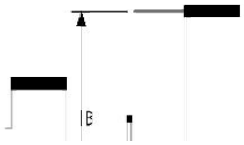
2) Click the EXECUTE button on LCD ADJUSTMENT MENU screen to proceed with the BRIGHT ADJUSTMENT screen.

3) Click the UP or DOWN button so that the value of level B of waveform is 2.35V ± 0.1Vp-p. Click the button at approx. 2-second intervals while checking any increase or decrease in level B.

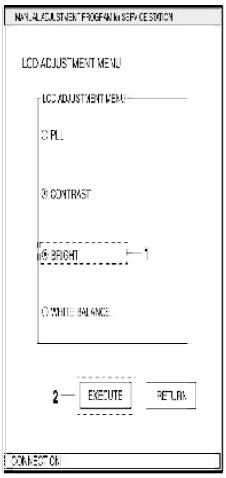
4) After step 3) is complete, be sure to click the SAVE button.
Note that clicking the RETURN button will restore the LCD ADJUSTMENT MENU screen to the status before the adjustment was performed.

5) When save is complete, the ADJUSTMENT FINISHED dialog will appear. Click the OK button in dialog to restore the LCD ADJUSTMENT MENU screen.

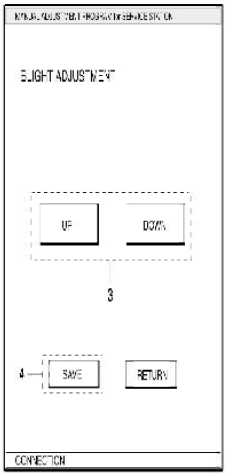
[Before Adjustment]



LCD ADJUSTMENT MENU screen



BRIGHT ADJUSTMENT screen



ADJUSTMENT FINISHED dialog

(4) LCD Contrast-2

Preparations:

1) Connect the oscilloscope CH2 to "LCD-G (pin 13)" of Halcyon connector.

2) Switch the oscilloscope V-MODE to "CH2". Leave the TRRIGER SOURCE in "CH1" as is.

Procedure

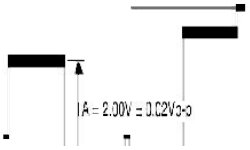
1) Choose CONTRAST on the LCD ADJUSTMENT MENU screen.

2) Click the EXECUTE button on LCD ADJUSTMENT MENU screen to proceed with the CONTRAST ADJUSTMENT screen.

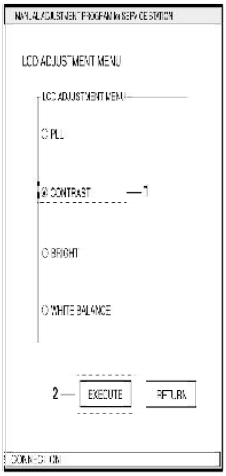
3) Click the UP or DOWN button so that the value of level A of waveform is 2.00V ± 0.02Vp-p. Click the button at approx. 2-second intervals while checking any increase or decrease in level A.

4) After step 3) is complete, be sure to click the SAVE button.
Note that clicking the RETURN button will restore the LCD ADJUSTMENT MENU screen to the status before the adjustment was performed.

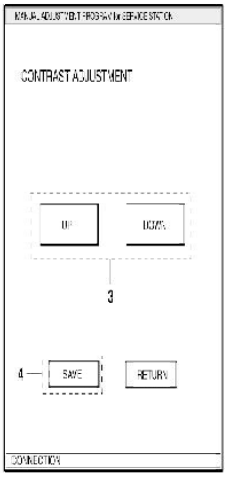
5) When save is complete, the ADJUSTMENT FINISHED dialog will appear. Click the OK button in dialog to restore the LCD ADJUSTMENT MENU screen.



LCD ADJUSTMENT MENU screen



CONTRAST ADJUSTMENT screen



ADJUSTMENT FINISHED dialog

(5) LCD White Balance

Preparations:

1) Connect the oscilloscope CH1 to "LCD-R (pin 14)" of Halcyon connector.

2) Connect the oscilloscope CH2 to "LCD-G (pin 13)" of Halcyon connector.

3) Connect the oscilloscope EXT TRIG to video output.

4) Switch the oscilloscope V-MODE to "ALT" and TRIGGER SOURCE to "EXT".

5) Set the switches and knobs on oscilloscope so that the CH1 and CH2 waveforms appear as shown in Fig. 10-4-11.

Procedure

1) Choose WHITE BALANCE on the LCD ADJUSTMENT MENU screen.

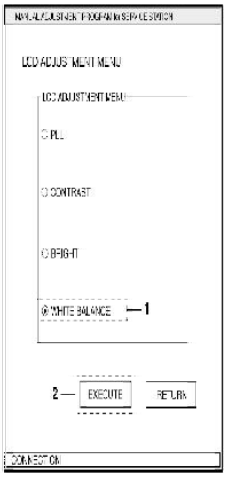
2) Click the EXECUTE button on LCD ADJUSTMENT MENU screen to proceed with the SUB CONTRAST RED ADJUSTMENT screen.

3) Click the UP and DOWN buttons so that level a of CH1 waveform is equal to level b of CH2 waveform. Click the button at approx. 2-second intervals while checking any increase or decrease in level a.

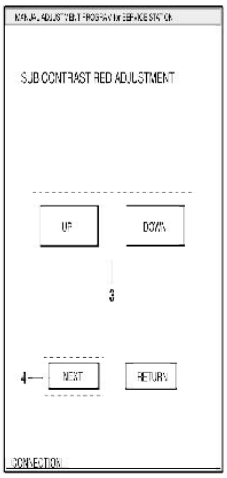
4) After step 3) is complete, be sure to click the NEXT button, and then proceed with the SUB BRIGHT RED ADJUSTMENT screen.
Note that clicking the RETURN button will restore the LCD ADJUSTMENT MENU screen to the status before the adjustment was performed.

5) Use the same procedure as in step 3) to equalize levels c and d of the waveform.

LCD ADJUSTMENT MENU screen



SUB CONTRAST RED ADJUSTMENT screen.



SUB BRIGHT RED ADJUSTMENT screen.

7) Connect the oscilloscope CH1 to "LCD-B (pin 12)" of Halcyon connector.

8) Use the same procedure as in step 3) to equalize levels a and b of the waveform. (See Fig. 10-4-12)

9) After step 8) is complete, be sure to click the NEXT button, and then proceed with the SUB BRIGHT BLUE ADJUSTMENT screen.

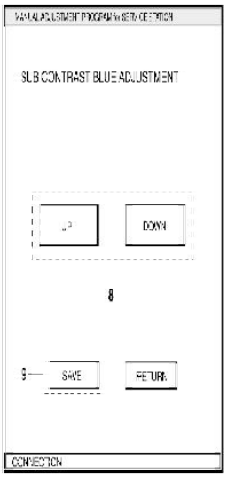
10) Use the same procedure as in step 3) to equalize levels c and d of the waveform.

11) After step 10) is complete, be sure to click the SAVE button.

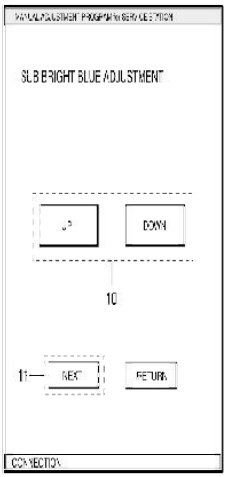
12) When save is complete, the ADJUSTMENT FINISHED dialog will appear. Click the OK button in dialog to restore the LCD ADJUSTMENT MENU screen.

13) Click the RETURN button in LCD ADJUSTMENT MENU to restore the ADJUST MENU screen.

SUB CONTRAST BLUE ADJUSTMENT screen.



SUB BRIGHT BLUE ADJUSTMENT screen.



11. Block Diagrams

11.1. Video / Audio singal process block diagram

11.2. Power-1 block diagram

11.3. Power-2 block diagram

12. Schematic Diagrams

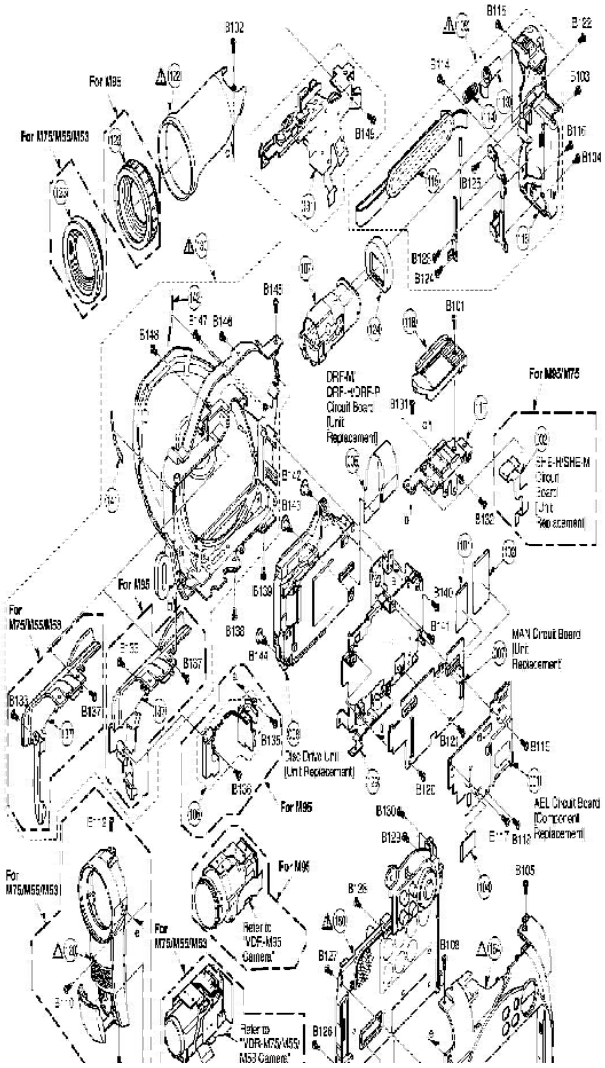
12.1. VDR-M95/M55/M53 wiring diagram

12.2. VDR-M75 wiring diagram

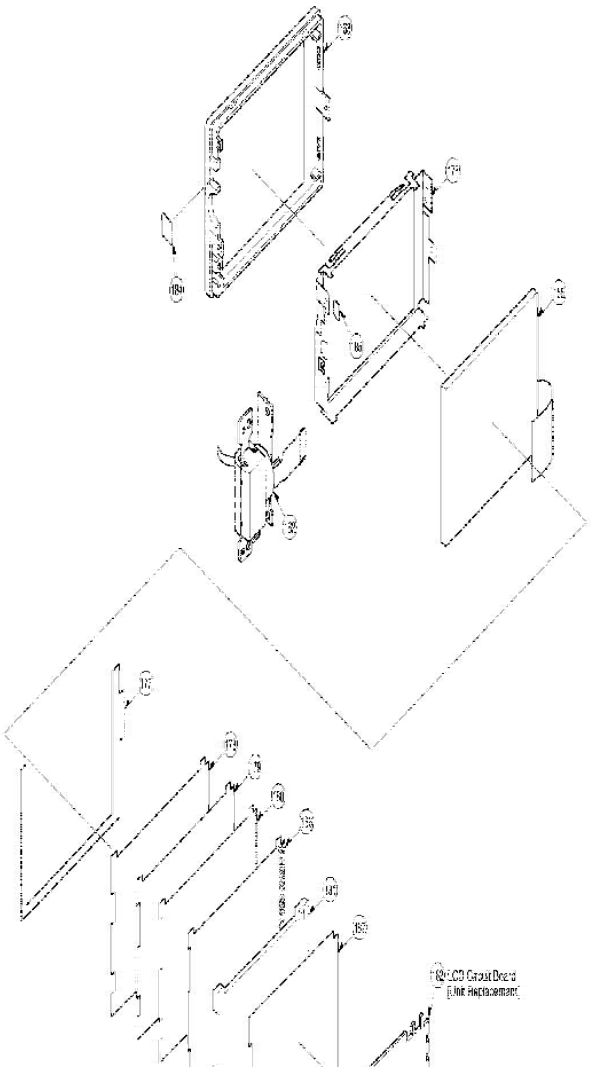
12.3. FRT-H/-M/-P schematic diagram

12.4. AEL schematic diagram

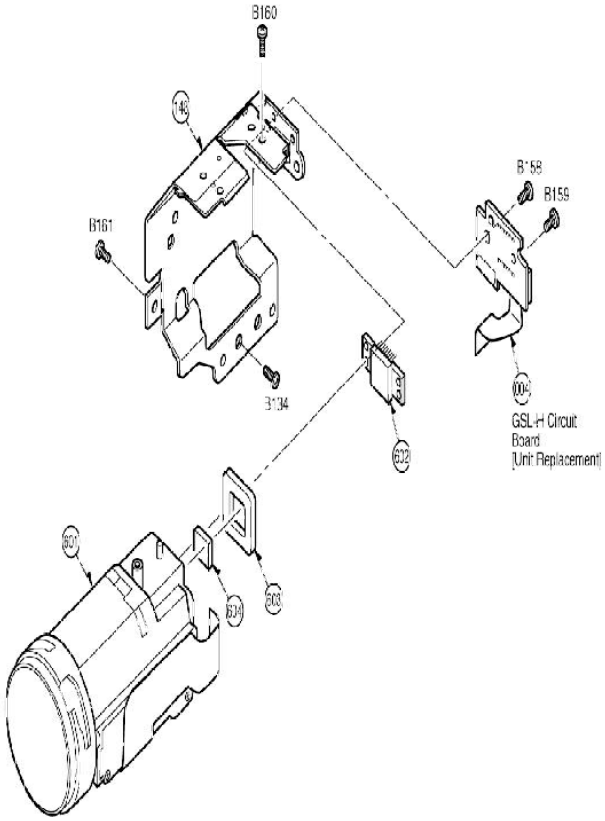
12.5. IC block schematic diagram
13. Circuit Board Layout
13.1. FRT-H/-M/-P C.B.A.
13.2. AEL C.B.A.
14. Exploded Views
14.1. Main Parts Section


For M95
For M75/M55/M53
DRF-N
DRF-H/DRF-P
Circuit Board
(Unit
Replacement)
For M95
Zoom Drive Unit
(Unit Replacement)
For M95
Refer to
"VCF-M95
Camera"
Refer to
"VDR-M75/M55/
M53 Camera"
MAIN Circuit Board
(Unit
Replacement)
AEL Circuit Board
(Component
Replacement)

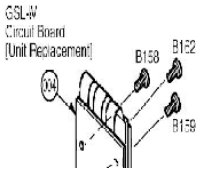
14.2. LCD



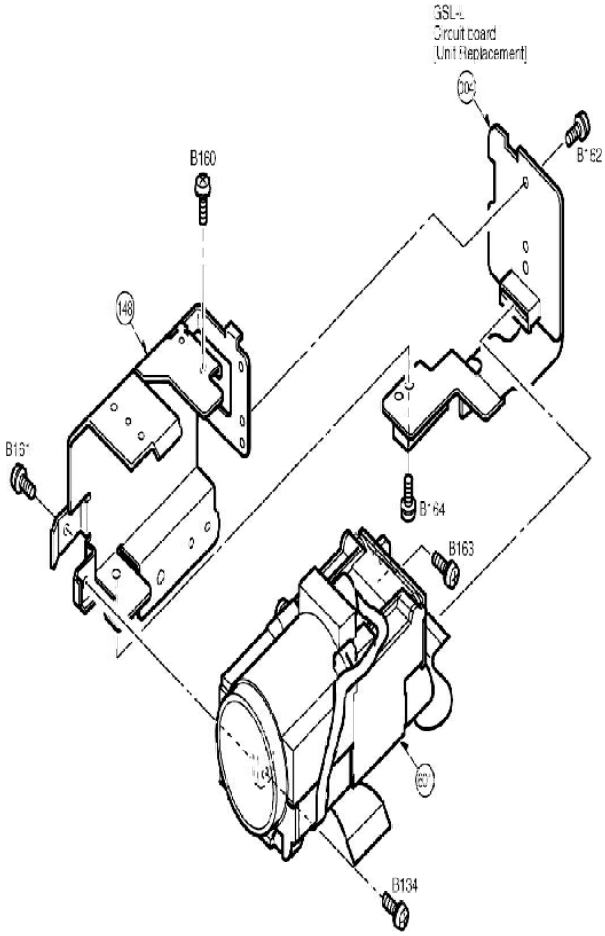
14.3. VDR-M95 Camara



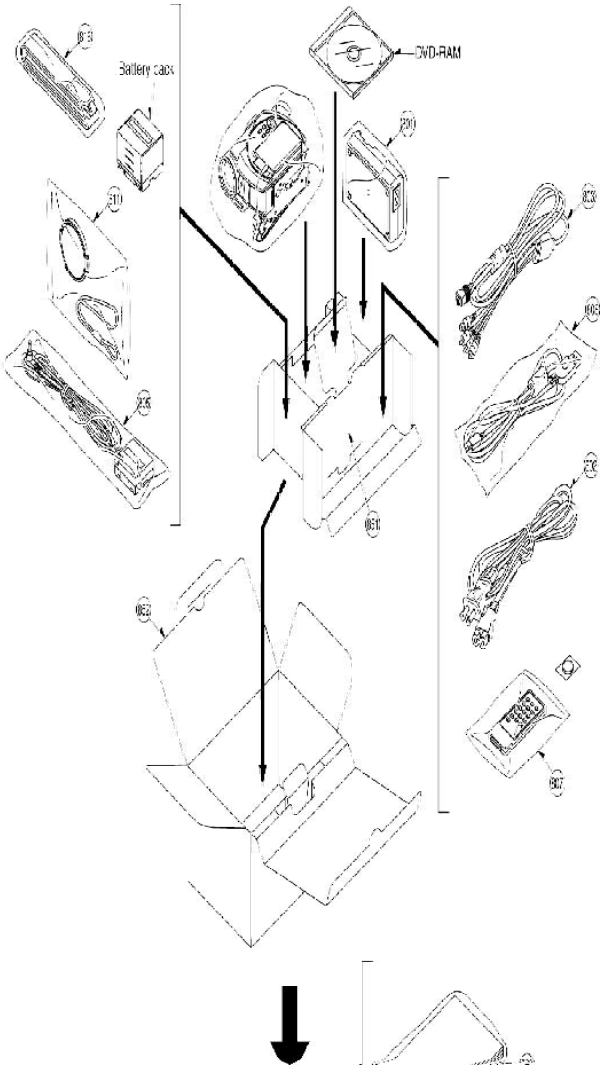
14.4. VDR-M75 Camera



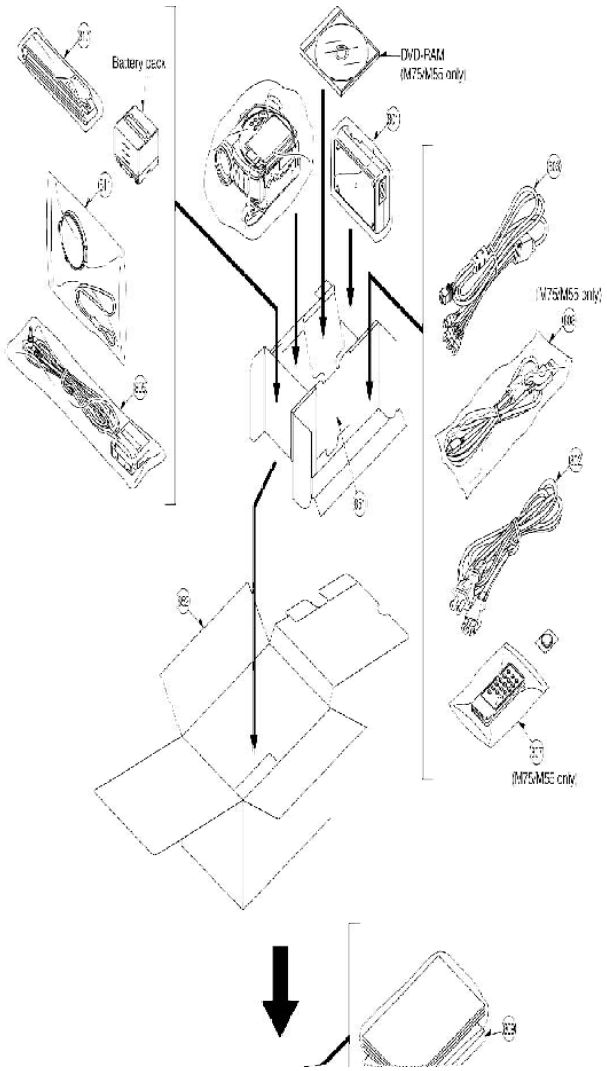
14.5. VDR-M55/M53 Camera



14.6. VDR-M95 Packing and Accessory Parts



14.7. VDR-M75/M55/M53 Packing and Accessory Parts



15. Replacement Parts List

BEFORE REPLACING PARTS, READ THE FOLLOWING:

1. Use only original replacement parts:
To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list.

2. IMPORTANT SAFETY NOTICE

Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.

3. **Parts whose Ref. Nos. are the same are interchangeable as replacement parts. Any of these parts may be ordered and used as a replacement part.**
4. **Unless otherwise specified;**
   All resistors are in Ω, K = 1,000 Ω, M = 1,000 k .
5. **Abbreviation**
   RTL: Retention Time Limited
   This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.
   NR: Non Repairable Board Ass'y
   MGF CHIP: Metal Glaze Film Chip
   C CHIP: Ceramic Chip
   COMPLX CMP: Complex Component
   W FLMPRF: Wirewound Flameproof
   C.B.A.: Circuit Board Assembly
   P.C.B.: Printed Circuit Board
   E.S.D.: Electrostatically Sensitive Devices
   CSP: Chip Size Package

15.1. Mechanical Replacement Parts

Notes:

Supply of CD-ROM, in accordance with license protection, is allowable as replacement parts only for customers who accidentally damaged or lost their own.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
001	JP43151	AEL C.B.A.	1	(RTL) VDR-M95,75
001	JP43155	AEL C.B.A.	1	(RTL) VDR-M55,53
002	JP43231	SHE-H C.B.A.	1	VDR-M95
002	JP43601	SHE-M C.B.A.	1	VDR-M75
003	JP43811	FRT-H C.B.A.	1	(RTL) VDR-M95
003	JP43781	FRT-M C.B.A.	1	(RTL) VDR-M75
003	JP44981	FRT-P C.B.A.	1	(RTL) VDR-M55,53
004	JP43251	GSL-H C.B.A.	1	VDR-M95
004	JP43621	GSL-M C.B.A.	1	VDR-M75
004	JP44771	GSL-L C.B.A.	1	VDR-M55,53
005	JP43261	DRF-H C.B.A.	1	VDR-M95
005	JP43631	DRF-M C.B.A.	1	VDR-M75
005	JP44991	DRF-P C.B.A.	1	VDR-M55,53
006	JP43801	AVJ-H C.B.A.	1	VDR-M95
006	JP43611	AVJ-M C.B.A.	1	VDR-M75
006	JP45001	AVJ-P C.B.A.	1	VDR-M55
006	JP45002	AVJ-P C.B.A.	1	VDR-M53
007	JP43146	MAN C.B.A.	1	VDR-M95
007	JP43577	MAN C.B.A.	1	VDR-M75
007	JP43587	MAN C.B.A.	1	VDR-M55
007	JP43588	MAN C.B.A.	1	VDR-M53
008	UA12661	DVD DRIVE ASSY	1	
101	MC10621	HEAT SINK	1	
102	MC10624	HEAT SINK	1	
104	MN20271	LCD SHEET	1	
106	DP10371	FLASH	1	VDR-M95
107	HP14171	EVF ASSY	1	VDR-M95
107	HP14173	EVF ASSY	1	VDR-M75,55,53
108	QD41462	REAR CASE	1	VDR-M95
108	QD41463	REAR CASE	1	VDR-M75,55
108	QD41465	REAR CASE	1	VDR-M53
113	PC19931	BATTERY BUTTON	1	
114	KL15901	BATTERY SPRING	1	
115	PV10461	HAND STRAP	1	VDR-M95
115	PV10471	HAND STRAP	1	VDR-M75,55,53
116	EZ10702	BATTERY TERMINAL	1	VDR-M95
117	NA34972	TOP FRAME	1	VDR-M95
117	NA34992	TOP FRAME	1	VDR-M75
117	NA35012	TOP FRAME	1	VDR-M55,53
118	QX17912	TOP CAVER	1	VDR-M95,55,53
118	QX17932	TOP COVER	1	VDR-M75
119	NJ13371	JACK HOLDER	1	
120	QD41331	FRONT CASE	1	VDR-M95
120	QD41361	FRONT CASE	1	VDR-M75
120	QD41391	FRONT CASE	1	VDR-M55
120	QD41392	FRONT CASE	1	VDR-M53
121	GH10431	MICROPHONE	1	VDR-M95,55,53
121	GH10432	MICROPHONE	1	VDR-M75
122	QX18221	LENS COVER	1	VDR-M95
122	QX18251	LENS COVER	1	VDR-M75
122	QX18222	LENS COVER	1	VDR-M55,53
123	QX18371	HOOD	1	VDR-M95

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
123	QX18381	HOOD	1	VDR-M75
123	QX18391	HOOD	1	VDR-M55,53
124	QX17632	EYE CAP	1	
126	QX17197	ADJUSTMENT COVER	1	
129	NA34741	MECHA FRAME	1	
130	QD41471	SIDE CASE(R)	1	VDR-M95
130	QD41472	SIDE CASE(R)	1	VDR-M75
130	QD41473	SIDE CASE(R)	1	VDR-M55,53
131	NX27101	LOCK UNIT	1	
137	QD40772	COVER(R)	1	VDR-M95
137	QD41612	COVER(R)	1	VDR-M75
137	QD41622	COVER(R)	1	VDR-M55,53
141	MN20341	F CUSHION	1	
142	MN20351	R CUSHION	1	
148	NX27391	LENS FRAME	1	VDR-M95
148	NX27011	LENS FRAME	1	VDR-M75
148	NX27721	LENS FRAME	1	VDR-M55,53
150	QD41242	SIDE CASE(L)	1	
152	NA34692	L PLATE	1	
154	QD41152	L COVER	1	VDR-M95
154	QD41212	L COVER	1	VDR-M75
154	QD41154	L COVER	1	VDR-M55,53
155	DB11041	LCD UNIT	1	
162	QD41541	FULUCRUM ASSY	1	VDR-M95,75
162	QD41542	FULUCRUM ASSY	1	VDR-M55,53
163	QD41631	LCD CASE(B)	1	
165	QD41561	LCD CASE(U)	1	VDR-M95
165	QD41565	LCD CASE(U)	1	VDR-M75
165	QD41563	LCD CASE(U)	1	VDR-M55,53
169	NA35431	J PLATE	1	
176	NA34901	LCD FRAME	1	
177	MN20291	MONITOR SHEET	1	
178	MN19611	DBEF SHEET	1	
179	MN19911	BEF2-Y SHEET	1	
180	MN19901	BEF2-X SHEET	1	
181	KS11101	PLATE	1	
182	JP43971	MONITOR C.B.A.	1	
183	JP44211	MR C.B.A.	1	
184	MN20421	LCD MR SHEET	1	
185	MN18088	SPACER SHEET	1	
186	MN20561	DIFFUSION SHEET	1	
187	MN20541	REFLECTION SHEET	1	
B101	MK14206	SCREW	1	VDR-M95
B101	MK14208	SCREW	1	VDR-M75,55,53
B102	MK14202	SCREW	1	
B103	MK14206	SCREW	1	
B104	MK14206	SCREW	1	
B105	MK14206	SCREW	1	
B106	MK14206	SCREW	1	
B107	MK14206	SCREW	1	
B108	MK14202	SCREW	1	
B109	MK14202	SCREW	1	
B110	MK14206	SCREW	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
B111	MK14206	SCREW	1	
B112	MK14206	SCREW	1	
B113	MK11911	SCREW	1	
B114	MK14206	SCREW	1	
B115	MK14206	SCREW	1	
B116	MK14206	SCREW	1	
B117	MK13791	SCREW	1	
B118	MK13791	SCREW	1	
B119	MK13791	SCREW	1	
B120	MK13791	SCREW	1	
B121	MK13791	SCREW	1	
B122	MK14206	SCREW	1	
B123	MK13782	SCREW	1	
B124	MK13782	SCREW	1	
B125	MK14206	SCREW	1	
B126	MK13782	SCREW	1	
B127	MK13782	SCREW	1	
B128	MK13782	SCREW	1	
B129	MK13782	SCREW	1	
B130	MK13782	SCREW	1	
B131	MK14202	SCREW	1	VDR-M95,75
B131	MK14208	SCREW	1	VDR-M55,53
B132	MK14202	SCREW	1	
B133	MK14206	SCREW	1	
B134	MK14202	SCREW	1	
B135	MK14202	SCREW	1	
B136	MK13782	SCREW	1	
B137	MK13782	SCREW	1	
B138	MK14206	SCREW	1	
B139	MK14206	SCREW	1	
B140	MK13782	SCREW	1	
B141	MK13782	SCREW	1	
B142	MK14291	SCREW	1	
B143	MK14291	SCREW	1	
B144	MK14291	SCREW	1	
B145	MK14208	SCREW	1	
B146	MK14208	SCREW	1	
B147	MK14208	SCREW	1	
B148	MK14208	SCREW	1	
B149	MK13782	SCREW	1	
B150	7773852	SCREW	1	
B151	7773852	SCREW	1	
B152	MK14206	SCREW	1	
B153	MK14206	SCREW	1	
B154	MK14206	SCREW	1	
B155	MK13782	SCREW	1	
B156	MK13782	SCREW	1	
B157	MK13782	SCREW	1	
B158	MK11911	SCREW	1	
B159	MK11911	SCREW	1	
B160	MK13785	SCREW	1	
B161	MK13785	SCREW	1	
B162	MK13791	SCREW	1	VDR-M75,55,53
B163	MK14202	SCREW	1	VDR-M55,53
B164	MK13791	SCREW	1	VDR-M55,53
601	KQ11341	LENS ASSY	1	VDR-M95

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
601	KQ11381	LENS ASSY	1	VDR-M75
601	HP14431	LENS ASSY	1	VDR-M55,53
602	UE17151	SENSOR ASSY	1	VDR-M95
602	UE17161	SENSOR ASSY	1	VDR-M75
603	MN20361	SPACER	1	VDR-M95
603	MN20371	SPACER	1	VDR-M75
604	DT10592	CRYSTAL	1	VDR-M95
604	DT10591	CRYSTAL	1	VDR-M75
801	VSK0677	AC ADPTOR	1	TS19155
802	EV11004	AC CABLE	1	
803	EW12525	AV CABLE	1	
805	EV11011	DC CABLE	1	
806	MS10812	SHEET	1	
807	VEQ4504	REMOTE CONTROL UNIT	1	HL11434 VDR-M95,75,55
808	EW12531	USB CABLE	1	VDR-M95,75,55
809	VQT0R00	OPERATING INSTRUCTIONS	1	QR35712
811	QX17716	LENS CAP	1	VDR-M95,55,53
811	QX17756	LENS CAP	1	VDR-M75
812	VFF0283	CD-ROM	1	DN11892 VDR-M95,75,55 See “Notes”.
816	TS16756	SHOLDER STRAP	1	VDR-M95
817	TS16756	SHOLDER STRAP	1	VDR-M75,55,53
851	SP18782	CUSHION	1	VDR-M95,55
851	SP18792	CUSHION	1	VDR-M75
851	SP18921	CUSHION	1	VDR-M53
852	SG28291	PACKING CASE	1	VDR-M95
852	SG28292	PACKING CASE	1	VDR-M75
852	SG28293	PACKING CASE	1	VDR-M55
852	SG28294	PACKING CASE	1	VDR-M53

15.2. Electrical Replacement Parts

Definition of Parts supplier:

1. All parts are supplied from MKE.

15.2.1. AEL C.B.A.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
BA7001	FS11091	BATTERY	1	VDR-M95,75,53
BL5001	BM10682R	COIL	1	VDR-M95,75,55
BL5002	BM10682R	COIL	1	VDR-M95,75,55
BL5004	BM10682R	COIL	1	VDR-M95,75,55
BL6001L	BM10697R	CORE	1	
BL6001R	BM10697R	CORE	1	
BL6201	BM10682R	COIL	1	
BL6202	BM10682R	COIL	1	
BL8001	BM10349R	COIL	1	
BL8002	BM10696R	COIL	1	
BL8003	BM10349R	COIL	1	
BL8004	BM10696R	COIL	1	
BL8005	BM10696R	COIL	1	
BL8006	BM10696R	COIL	1	
BL8007	BM10349R	COIL	1	
BL8008	BM10349R	COIL	1	
BL8009	BM10696R	COIL	1	
BL8010	BM10345R	COIL	1	VDR-M95,75
C3705	AA00968R	CAPACITOR CH 6.3V 10U	1	
C3706	AA00968R	CAPACITOR CH 6.3V 10U	1	
C3708	AA00968R	CAPACITOR CH 6.3V 10U	1	
C3711	AA10872R	CAPACITOR CH 10V 0.1U	1	
C3713	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C3714	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C3715	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C3717	AD10891R	CAPACITOR CH 6.3V 100U	1	
C3718	AA01144R	C.CAPACITOR 50V 1.0U	1	
C5001	AA00968R	CAPACITOR CH 6.3V 10U	1	VDR-M95,75,55
C5002	AA00968R	CAPACITOR CH 6.3V 10U	1	VDR-M95,75,55
C5003	0893333	C.CAPACITOR CH 16V 0.01U	1	VDR-M95,75,55
C5005	0893333	C.CAPACITOR CH 16V 0.01U	1	VDR-M95,75,55
C5006	AA00966R	CAPACITOR CH 6.3V 4.7U	1	VDR-M95,75,55
C5007	0893333	C.CAPACITOR CH 16V 0.01U	1	VDR-M95,75,55
C5008	0893333	C.CAPACITOR CH 16V 0.01U	1	VDR-M95,75,55
C5009	0893265	C.CAPACITOR CH 50V 15P	1	VDR-M95,75,55
C5010	0893265	C.CAPACITOR CH 50V 15P	1	VDR-M95,75,55
C5011	0893333	C.CAPACITOR CH 16V 0.01U	1	VDR-M95,75,55
C5012	0893333	C.CAPACITOR CH 16V 0.01U	1	VDR-M95,75,55
C5013	0893333	C.CAPACITOR CH 16V 0.01U	1	VDR-M95,75,55
C5014	0893333	C.CAPACITOR CH 16V 0.01U	1	VDR-M95,75,55
C6001	0893333	C.CAPACITOR CH 16V 0.01U	1	
C6002L	0893324	C.CAPACITOR CH 50V 2200P	1	
C6002R	0893324	C.CAPACITOR CH 50V 2200P	1	
C6003L	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C6003R	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C6004L	AD10991R	C.CAPACITOR 4V 22U	1	
C6004R	AD10991R	C.CAPACITOR 4V 22U	1	
C6005L	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C6005R	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C6006	AA00968R	CAPACITOR CH 6.3V 10U	1	
C6021L	0893328	CAPACITOR CH 25V 4700P	1	
C6021R	0893328	CAPACITOR CH 25V 4700P	1	
C6026	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C6027	AA01111R	CAPACITOR CH 6.3V 1.0U	1	VDR-M95,75

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C6028	AA00968R	CAPACITOR CH 6.3V 10U	1	
C6029	AA10872R	CAPACITOR CH 10V 0.1U	1	VDR-M95,75
C6032	0893268	C.CAPACITOR CH 50V 27P	1	
C6101L	AA10872R	CAPACITOR CH 10V 0.1U	1	
C6101R	AA10872R	CAPACITOR CH 10V 0.1U	1	
C6102L	0893354	CAPACITOR CH 16V 0.015U	1	
C6102R	0893354	CAPACITOR CH 16V 0.015U	1	
C6103L	0893358	CAPACITOR CH 16V 0.033U	1	
C6103R	0893358	CAPACITOR CH 16V 0.033U	1	
C6104L	0893278	C.CAPACITOR CH 50V 150P	1	
C6104R	0893278	C.CAPACITOR CH 50V 150P	1	
C6105L	AA01143R	C.CAPACITOR 16V 0.22U	1	
C6105R	AA01143R	C.CAPACITOR 16V 0.22U	1	
C6106	AA00968R	CAPACITOR CH 6.3V 10U	1	
C6107L	0893331	CAPACITOR CH 25V 6800P	1	
C6107R	0893331	CAPACITOR CH 25V 6800P	1	
C6108L	AA01143R	C.CAPACITOR 16V 0.22U	1	
C6108R	AA01143R	C.CAPACITOR 16V 0.22U	1	
C6109L	0893333	C.CAPACITOR CH 16V 0.01U	1	
C6109R	0893333	C.CAPACITOR CH 16V 0.01U	1	
C6111	AA00968R	CAPACITOR CH 6.3V 10U	1	
C6112	AA00968R	CAPACITOR CH 6.3V 10U	1	
C6201L	AA01143R	C.CAPACITOR 16V 0.22U	1	
C6201R	AA01143R	C.CAPACITOR 16V 0.22U	1	
C6203L	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C6203R	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C6204	AA01113R	CAPACITOR CH 6.3V 2.2U	1	
C6205	AA00968R	CAPACITOR CH 6.3V 10U	1	
C6206	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C6207	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C6301	AA00968R	CAPACITOR CH 6.3V 10U	1	
C6302	AA00966R	CAPACITOR CH 6.3V 4.7U	1	
C6303L	AA01113R	CAPACITOR CH 6.3V 2.2U	1	
C6303R	AA01113R	CAPACITOR CH 6.3V 2.2U	1	
C6304L	AD10991R	C.CAPACITOR 4V 22U	1	
C6304R	AD10991R	C.CAPACITOR 4V 22U	1	
C6305	AA10872R	CAPACITOR CH 10V 0.1U	1	
C6306	AA00968R	CAPACITOR CH 6.3V 10U	1	
C6307L	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C6307R	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C6308	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C6309	0893319	C.CAPACITOR CH 50V 1000P	1	
C6311	AA00968R	CAPACITOR CH 6.3V 10U	1	
C6312	AA00968R	CAPACITOR CH 6.3V 10U	1	
C6313	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C6314	AA00968R	CAPACITOR CH 6.3V 10U	1	
C6315	AA00968R	CAPACITOR CH 6.3V 10U	1	
C6317	0893333	C.CAPACITOR CH 16V 0.01U	1	
C6318	AD10891R	CAPACITOR CH 6.3V 100U	1	
C6319	AA01113R	CAPACITOR CH 6.3V 2.2U	1	
C6320	AA00968R	CAPACITOR CH 6.3V 10U	1	
C6322	AA01113R	CAPACITOR CH 6.3V 2.2U	1	
C6323	AD10891R	CAPACITOR CH 6.3V 100U	1	
C6324	0893333	C.CAPACITOR CH 16V 0.01U	1	
C6327	AA10872R	CAPACITOR CH 10V 0.1U	1	
C6328	0893333	C.CAPACITOR CH 16V 0.01U	1	
C6329	AA00966R	CAPACITOR CH 6.3V 4.7U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C6330	AD10891R	CAPACITOR CH 6.3V 100U	1	
C6331	AA10872R	CAPACITOR CH 10V 0.1U	1	
C6332	0893333	C.CAPACITOR CH 16V 0.01U	1	
C6333	0893333	C.CAPACITOR CH 16V 0.01U	1	
C6334	AA10872R	CAPACITOR CH 10V 0.1U	1	
C8001	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C8002	AA01111R	CAPACITOR CH 6.3V 1.0U	1	
C8003	AA10872R	CAPACITOR CH 10V 0.1U	1	
C8005	AA10872R	CAPACITOR CH 10V 0.1U	1	
C8006	AA10872R	CAPACITOR CH 10V 0.1U	1	
C8011	0893319	C.CAPACITOR CH 50V 1000P	1	VDR-M95,75
C8051	AA00964R	C.CAPACITOR 6.3V 2.2U	1	
C8052	AA00964R	C.CAPACITOR 6.3V 2.2U	1	
C8061	AA00968R	CAPACITOR CH 6.3V 10U	1	
C8062	AA10872R	CAPACITOR CH 10V 0.1U	1	
CP5001	BM10631R	COIL	1	VDR-M95,75,55
D6001	MA132K	DIODE	1	MA3S132K
IC3701	CK43974R	IC	1	
IC5001	CK48771U	IC	1	VDR-M95,75,55
IC6021	CK60151R	IC	1	VDR-M95,75
IC6101	CK49891R	IC	1	VDR-M95
IC6101	C0ABCB000051	IC	1	VDR-M75,55,53
IC6201	C0FBZJ000005	IC	1	
IC6301	AN2903FJQ-V	IC	1	
IC8001	CK49881R	IC	1	
J7001	EA15291R	PLUG	1	
L3701	BA10577R	COIL	1	
L3702	BA10581R	COIL	1	
L6021	BA10149R	COIL	1	
L6101	0773004	COIL	1	
L6301	BA10584R	COIL	1	
L6302	BA10577R	COIL	1	
L6303	BA10577R	COIL	1	
L6304	BA10577R	COIL	1	
L6305	BA10582R	COIL	1	
L6306	BA10577R	COIL	1	
LD8061	CC12281R	DIODE	1	
PG3701	EA15381R	CONNECTOR	1	
PG6001	EA14621R	CONNECTOR	1	
PG6002	EA15021R	CONNECTOR	1	
PG6003	EA15581R	CONNECTOR	1	
PG8001	EA15001R	CONNECTOR	1	
PG8002	EA15091R	CONNECTOR	1	
PG8003	EA15261R	CONNECTOR	1	
PG8004	EA15021R	CONNECTOR	1	VDR-M95,75
PG8011	EA15411R	CONNECTOR	1	
PG8061	EZ10891	SD CONNECTOR	1	
Q6001L	CA14091R	TRANSISTOR	1	
Q6001R	CA14091R	TRANSISTOR	1	

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
Q6002L	CA14121R	TRANSISTOR	1	
Q6002R	CA14121R	TRANSISTOR	1	
Q6003	CA14091R	TRANSISTOR	1	
Q6004	CA12871R	TRANSISTOR	1	
Q6021	CA12871R	TRANSISTOR	1	
Q6022	CA12891R	TRANSISTOR	1	
Q6023	CA12871R	TRANSISTOR	1	
Q6024	CA12891R	TRANSISTOR	1	
Q6027	CA14091R	TRANSISTOR	1	VDR-M55,53
Q6028	CA14091R	TRANSISTOR	1	VDR-M95,75
Q6029	CA14091R	TRANSISTOR	1	VDR-M95,75
Q6030	CA14091R	TRANSISTOR	1	
Q6031	CA14091R	TRANSISTOR	1	VDR-M95,75
Q6032	CA02111R	TRANSISTOR	1	
Q6101L	CA14091R	TRANSISTOR	1	
Q6101R	CA14091R	TRANSISTOR	1	
Q6102L	CA12781R	TRANSISTOR	1	
Q6102R	CA12781R	TRANSISTOR	1	
Q6103L	CA14091R	TRANSISTOR	1	
Q6103R	CA14091R	TRANSISTOR	1	
Q6104L	CA14091R	TRANSISTOR	1	
Q6104R	CA14091R	TRANSISTOR	1	
Q6105	CA14091R	TRANSISTOR	1	
Q6301	CA14101R	TRANSISTOR	1	
Q8001	CA14081R	TRANSISTOR	1	VDR-M95,75
Q8002	CA12891R	TRANSISTOR	1	VDR-M95,75
R3711	0790014	C.RESISTOR 1/16W 18	1	
R3713	0790181	RESISTOR CHIP 1/16W 10	1	
R3714	0790181	RESISTOR CHIP 1/16W 10	1	
R3715	0790181	RESISTOR CHIP 1/16W 10	1	
R3716	0790181	RESISTOR CHIP 1/16W 10	1	
R3717	0790181	RESISTOR CHIP 1/16W 10	1	
R3718	0790181	RESISTOR CHIP 1/16W 10	1	
R5003	AQ00802R	RESISTOR CHIP 1/16W 5.6K	1	VDR-M95,75,55
R5004	0790247	RESISTOR CHIP 1/16W 1.0M	1	VDR-M95,75,55
R5005	0790207	RESISTOR CHIP 1/16W 1.0K	1	VDR-M95,75,55
R6001	BM10697R	CORE	1	
R6002L	0790218	RESISTOR CHIP 1/16W 6.8K	1	
R6002R	0790218	RESISTOR CHIP 1/16W 6.8K	1	
R6003L	0790203	RESISTOR CHIP 1/16W 470	1	
R6003R	0790203	RESISTOR CHIP 1/16W 470	1	
R6004L	0103869	RESISTOR CHIP 1/16W 150K	1	
R6004R	0103869	RESISTOR CHIP 1/16W 150K	1	
R6005L	AQ10762R	RESISTOR CHIP 1/16W 56K	1	
R6005R	AQ10762R	RESISTOR CHIP 1/16W 56K	1	
R6006L	AQ10712R	RESISTOR CHIP 1/16W 10K	1	
R6006R	AQ10712R	RESISTOR CHIP 1/16W 10K	1	
R6007L	0790207	RESISTOR CHIP 1/16W 1.0K	1	
R6007R	0790207	RESISTOR CHIP 1/16W 1.0K	1	
R6008L	0790217	RESISTOR CHIP 1/16W 5.6K	1	
R6008R	0790217	RESISTOR CHIP 1/16W 5.6K	1	
R6009L	0790196	RESISTOR CHIP 1/16W 150	1	
R6009R	0790196	RESISTOR CHIP 1/16W 150	1	
R6010	0790216	RESISTOR CHIP 1/16W 4.7K	1	
R6021	0790207	RESISTOR CHIP 1/16W 1.0K	1	
R6025	0790221	RESISTOR CHIP 1/16W 10K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R6026	0790204	RESISTOR CHIP 1/16W 560	1	
R6027	0790204	RESISTOR CHIP 1/16W 560	1	VDR-M95,75
R6028	0790191	RESISTOR CHIP 1/16W 56	1	
R6029	0790191	RESISTOR CHIP 1/16W 56	1	
R6030	0790191	RESISTOR CHIP 1/16W 56	1	
R6031	0790234	RESISTOR CHIP 1/16W 100K	1	VDR-M95,75
R6032	0790234	RESISTOR CHIP 1/16W 100K	1	VDR-M95,75
R6033	0790212	RESISTOR CHIP 1/16W 2.2K	1	VDR-M95,75
R6035	0790234	RESISTOR CHIP 1/16W 100K	1	VDR-M55,53
R6036	0790234	RESISTOR CHIP 1/16W 100K	1	VDR-M55,53
R6037	0790207	RESISTOR CHIP 1/16W 1.0K	1	VDR-M55,53
R6039	0790209	RESISTOR CHIP 1/16W 1.5K	1	VDR-M95,75
R6040	0790209	RESISTOR CHIP 1/16W 1.5K	1	
R6041	0790209	RESISTOR CHIP 1/16W 1.5K	1	VDR-M95,75
R6042	0790207	RESISTOR CHIP 1/16W 1.0K	1	
R6043	0790211	RESISTOR CHIP 1/16W 1.8K	1	
R6045	0790198	RESISTOR CHIP 1/16W 220	1	
R6101L	AQ10747R	RESISTOR CHIP 1/16W 3.9K	1	
R6101R	AQ10747R	RESISTOR CHIP 1/16W 3.9K	1	
R6102L	0790227	RESISTOR CHIP 1/16W 33K	1	
R6102R	0790227	RESISTOR CHIP 1/16W 33K	1	
R6103L	0790225	RESISTOR CHIP 1/16W 22K	1	
R6103R	0790225	RESISTOR CHIP 1/16W 22K	1	
R6104L	0790236	RESISTOR CHIP 1/16W 150K	1	
R6104R	0790236	RESISTOR CHIP 1/16W 150K	1	
R6105L	0790228	RESISTOR CHIP 1/16W 39K	1	
R6105R	0790228	RESISTOR CHIP 1/16W 39K	1	
R6106L	0790236	RESISTOR CHIP 1/16W 150K	1	
R6106R	0790236	RESISTOR CHIP 1/16W 150K	1	
R6107L	0790221	RESISTOR CHIP 1/16W 10K	1	
R6107R	0790221	RESISTOR CHIP 1/16W 10K	1	
R6108L	0790221	RESISTOR CHIP 1/16W 10K	1	
R6108R	0790221	RESISTOR CHIP 1/16W 10K	1	
R6109	0790225	RESISTOR CHIP 1/16W 22K	1	
R6110	0790227	RESISTOR CHIP 1/16W 33K	1	
R6111L	AQ10713R	RESISTOR CHIP 1/16W 100K	1	
R6111R	AQ10713R	RESISTOR CHIP 1/16W 100K	1	
R6112L	0790217	RESISTOR CHIP 1/16W 5.6K	1	
R6112R	0790217	RESISTOR CHIP 1/16W 5.6K	1	
R6113L	0790223	RESISTOR CHIP 1/16W 15K	1	
R6113R	0790223	RESISTOR CHIP 1/16W 15K	1	
R6114L	0790207	RESISTOR CHIP 1/16W 1.0K	1	
R6114R	0790207	RESISTOR CHIP 1/16W 1.0K	1	
R6115L	AQ10713R	RESISTOR CHIP 1/16W 100K	1	
R6115R	AQ10713R	RESISTOR CHIP 1/16W 100K	1	
R6116L	AQ10761R	RESISTOR CHIP 1/16W 47K	1	
R6116R	AQ10761R	RESISTOR CHIP 1/16W 47K	1	
R6117L	AQ10712R	RESISTOR CHIP 1/16W 10K	1	
R6117R	AQ10712R	RESISTOR CHIP 1/16W 10K	1	
R6118L	0790215	RESISTOR CHIP 1/16W 3.9K	1	
R6118R	0790215	RESISTOR CHIP 1/16W 3.9K	1	
R6119L	0790214	RESISTOR CHIP 1/16W 3.3K	1	
R6119R	0790214	RESISTOR CHIP 1/16W 3.3K	1	
R6120	0790216	RESISTOR CHIP 1/16W 4.7K	1	
R6201L	0790207	RESISTOR CHIP 1/16W 1.0K	1	
R6201R	0790207	RESISTOR CHIP 1/16W 1.0K	1	
R6203L	0790223	RESISTOR CHIP 1/16W 15K	1	

[illegible]	[illegible]	[illegible]	[illegible]	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R6203R	0790223	RESISTOR CHIP 1/16W 15K	1	
R6204L	0790227	RESISTOR CHIP 1/16W 33K	1	
R6204R	0790227	RESISTOR CHIP 1/16W 33K	1	
R6205	0790181	RESISTOR CHIP 1/16W 10	1	
R6301L	0790207	RESISTOR CHIP 1/16W 1.0K	1	
R6301R	0790207	RESISTOR CHIP 1/16W 1.0K	1	
R6302L	0790238	RESISTOR CHIP 1/16W 220K	1	
R6302R	0790238	RESISTOR CHIP 1/16W 220K	1	
R6304	0790216	RESISTOR CHIP 1/16W 4.7K	1	
R6308	0790234	RESISTOR CHIP 1/16W 100K	1	
R6311	0790229	RESISTOR CHIP 1/16W 47K	1	
R6314	0790211	RESISTOR CHIP 1/16W 1.8K	1	
R6316	0790242	RESISTOR CHIP 1/16W 390K	1	
R6317	0790202	RESISTOR CHIP 1/16W 390	1	
R6318	0790202	RESISTOR CHIP 1/16W 390	1	
R6319	0790211	RESISTOR CHIP 1/16W 1.8K	1	
R6324	0790229	RESISTOR CHIP 1/16W 47K	1	
R6325	0790216	RESISTOR CHIP 1/16W 4.7K	1	
R6326	0790181	RESISTOR CHIP 1/16W 10	1	
R6327	0790209	RESISTOR CHIP 1/16W 1.5K	1	
R6328	0790181	RESISTOR CHIP 1/16W 10	1	
R6330	0790221	RESISTOR CHIP 1/16W 10K	1	
R6333	0790221	RESISTOR CHIP 1/16W 10K	1	
R8001	0790207	RESISTOR CHIP 1/16W 1.0K	1	VDR-M95,75
R8002	0790207	RESISTOR CHIP 1/16W 1.0K	1	VDR-M95,75
R8003	0790207	RESISTOR CHIP 1/16W 1.0K	1	VDR-M95,75
R8005	0790073	RESISTOR CHIP 1/16W 470K	1	VDR-M95,75
R8006	0790068	RESISTOR CHIP 1/16W 220K	1	VDR-M95,75
R8042	0790181	RESISTOR CHIP 1/16W 10	1	VDR-M95,75
R8042	0790207	RESISTOR CHIP 1/16W 1.0K	1	VDR-M55,53
R8043	0790181	RESISTOR CHIP 1/16W 10	1	VDR-M95,75
R8043	0790207	RESISTOR CHIP 1/16W 1.0K	1	VDR-M55,53
R8044	0790181	RESISTOR CHIP 1/16W 10	1	VDR-M95,75
R8044	0790207	RESISTOR CHIP 1/16W 1.0K	1	VDR-M55,53
R8045	0790181	RESISTOR CHIP 1/16W 10	1	
R8046	0790181	RESISTOR CHIP 1/16W 10	1	VDR-M95,75
R8046	0790207	RESISTOR CHIP 1/16W 1.0K	1	VDR-M55,53
R8047	0790181	RESISTOR CHIP 1/16W 10	1	VDR-M95,75
R8047	0790207	RESISTOR CHIP 1/16W 1.0K	1	VDR-M55,53
R8048	0790181	RESISTOR CHIP 1/16W 10	1	
R8049	0790181	RESISTOR CHIP 1/16W 10	1	
R8050	0790181	RESISTOR CHIP 1/16W 10	1	
R8051	0790024	RESISTOR CHIP 1/16W 100	1	VDR-M95
R8051	0790194	RESISTOR CHIP 1/16W 100	1	VDR-M75,55,53
R8052	0790194	RESISTOR CHIP 1/16W 100	1	
R8053	0790181	RESISTOR CHIP 1/16W 10	1	
R8061	0790185	RESISTOR CHIP 1/16W 22	1	
R8062	0790185	RESISTOR CHIP 1/16W 22	1	
R8063	0790185	RESISTOR CHIP 1/16W 22	1	
R8064	0790185	RESISTOR CHIP 1/16W 22	1	
R8065	0790185	RESISTOR CHIP 1/16W 22	1	
SW8001	FB10741R	SWITCH	1	
X5001	BL12211R	CRYSTAL	1	VDR-M95,75,55
ZD8001	CC02086R	DIODE	1	VDR-M95,75

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks

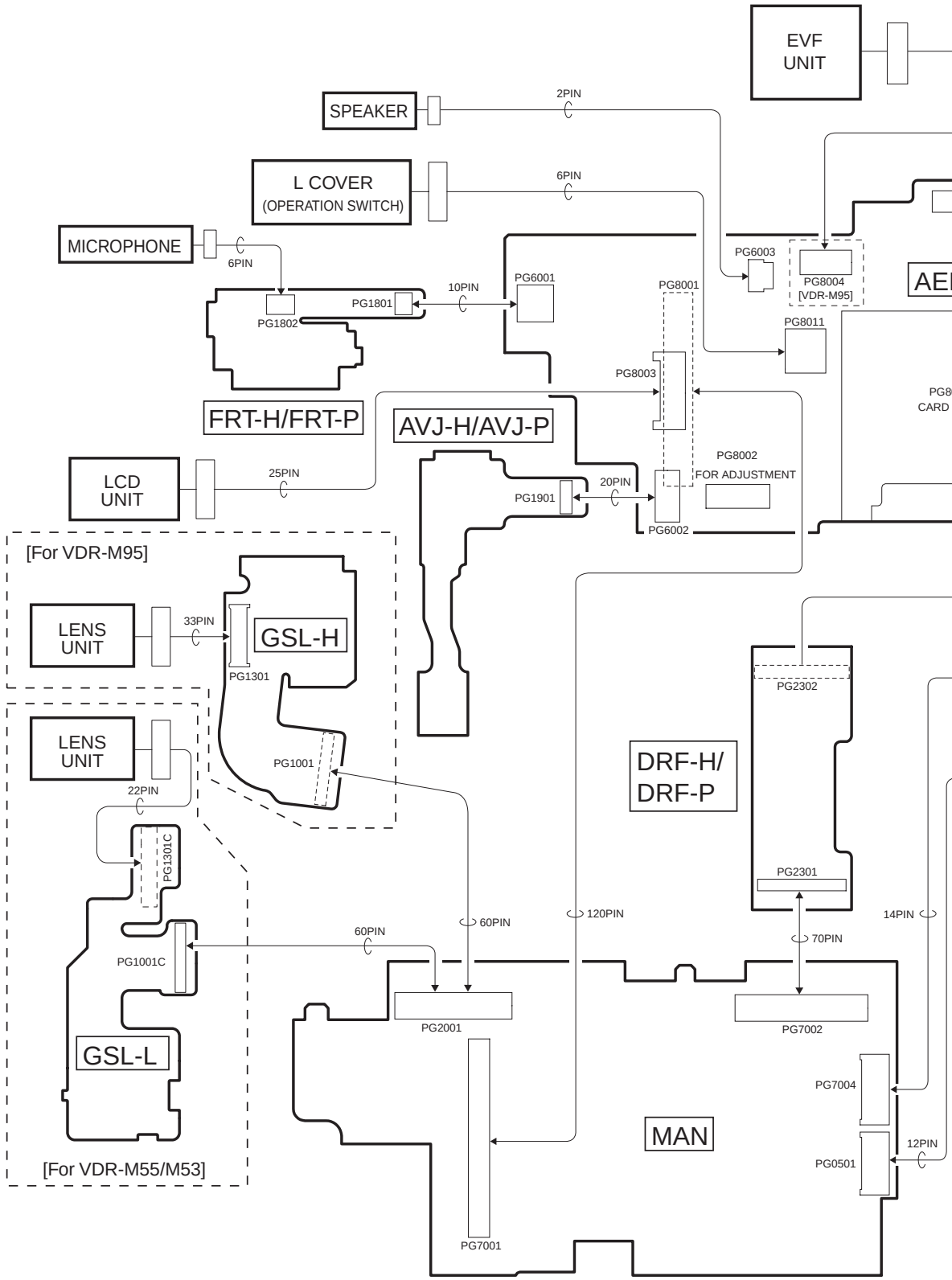
15.2.2. FRT-H/-M/-P C.B.A.

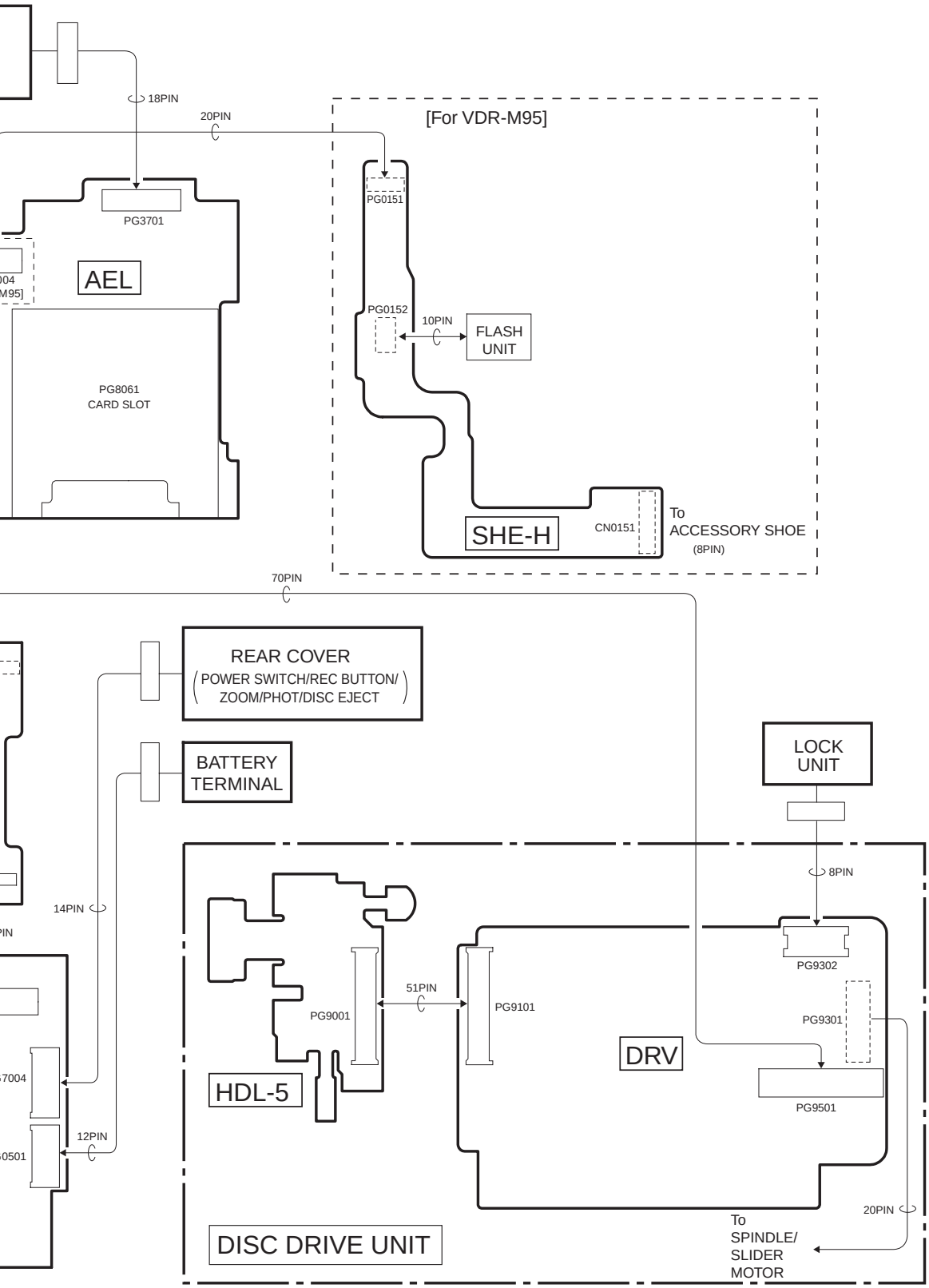
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C1801	AA00968R	CAPACITOR CH 6.3V 10U	1	
C1803	AA01126R	C.CAPACITOR 10V 0.22U	1	
C1804	AA01126R	C.CAPACITOR 10V 0.22U	1	
D1801	CC13061R	DIODE	1	VDR-M95
D1801	DAP222	DIODE	1	VDR-M75,55,53
IC1801	CE10291R	IC	1	
LD1802	CC12281R	DIODE	1	VDR-M75,55,53
PD1801	CH12281	DIODE	1	
PG1801	EA14631R	CONNECTOR	1	
PG1802	EA15601R	CONNECTOR	1	
Q1802	B1ABDF000001	TRANSISTOR	1	
Q1803	2SD2345-S	TRANSISTOR	1	2SD23450S
R1803	0104084	RESISTOR CHIP 1/16W 2.2M	1	
R1805	0790071	RESISTOR CHIP 1/16W 330K	1	
R1806	0790046	RESISTOR CHIP 1/16W 4.7K	1	
R1807	0790041	RESISTOR CHIP 1/16W 1.8K	1	
R1811	AQ10344R	RESISTOR CHIP 1/16W 10M	1	
R1814	0790019	RESISTOR CHIP 1/16W 47	1	

16. Schematic Diagram for printing with A4

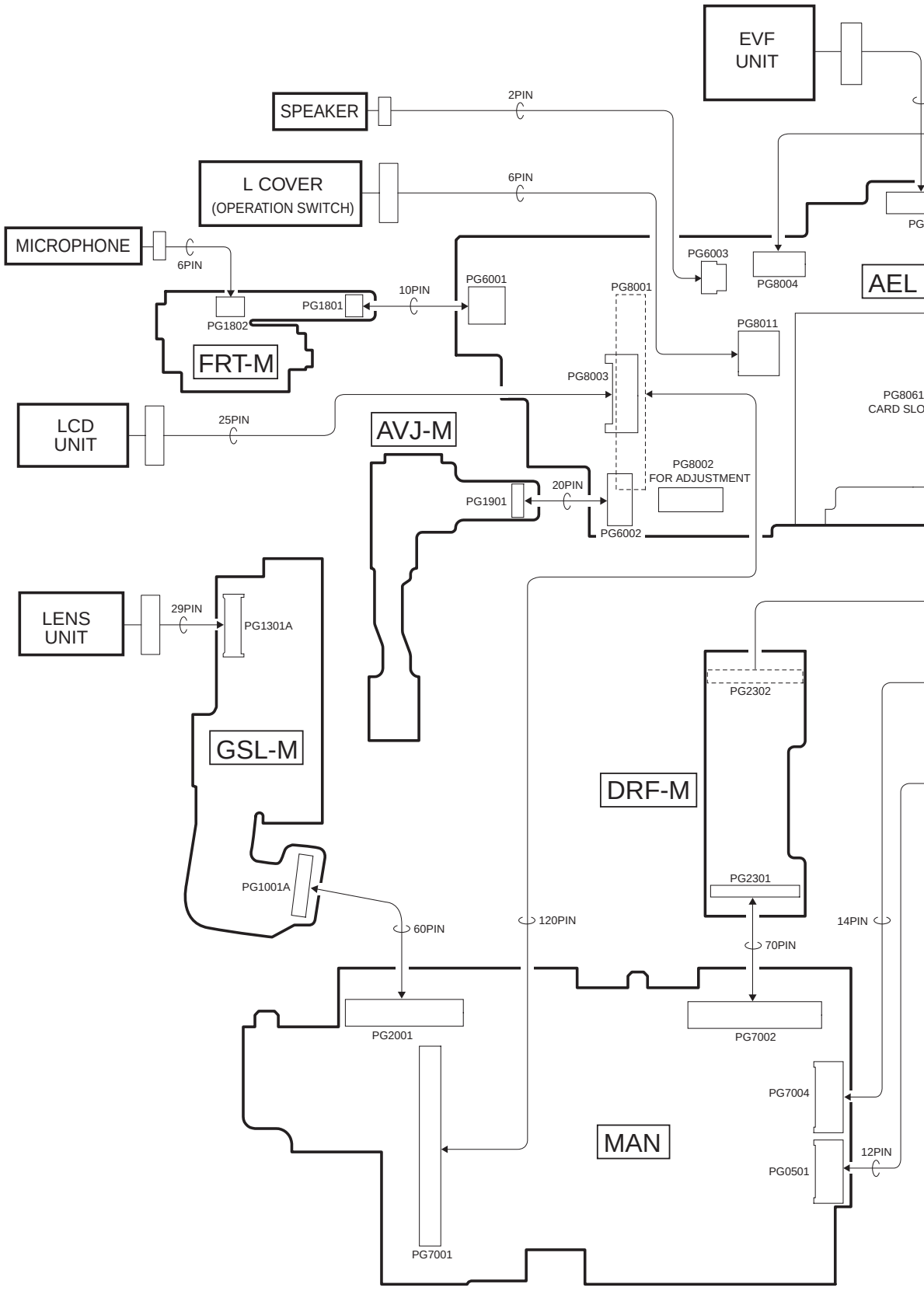
12 Schematic Diagrams

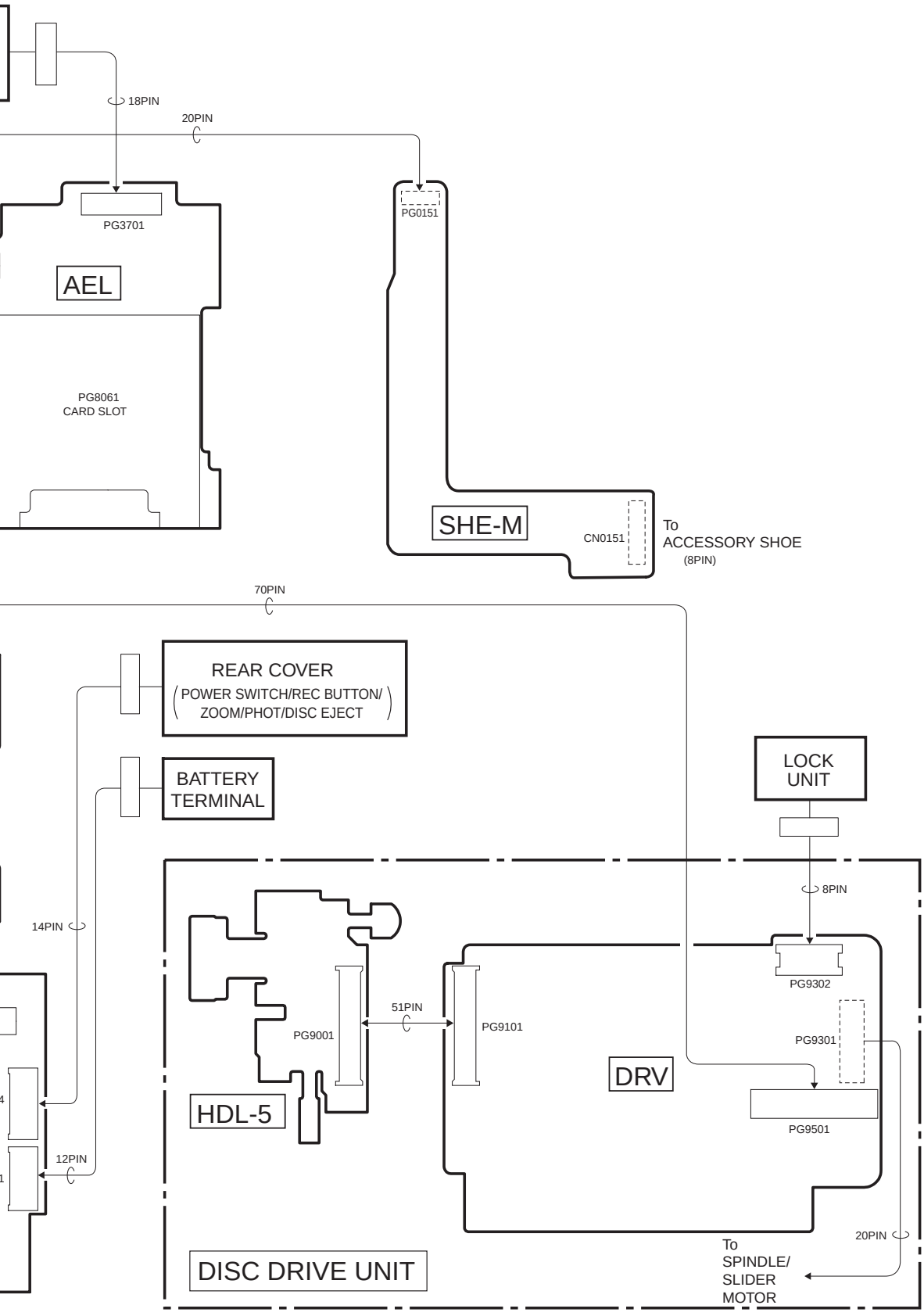
12.1. VDR-M95/M55/M53 wiring diagram



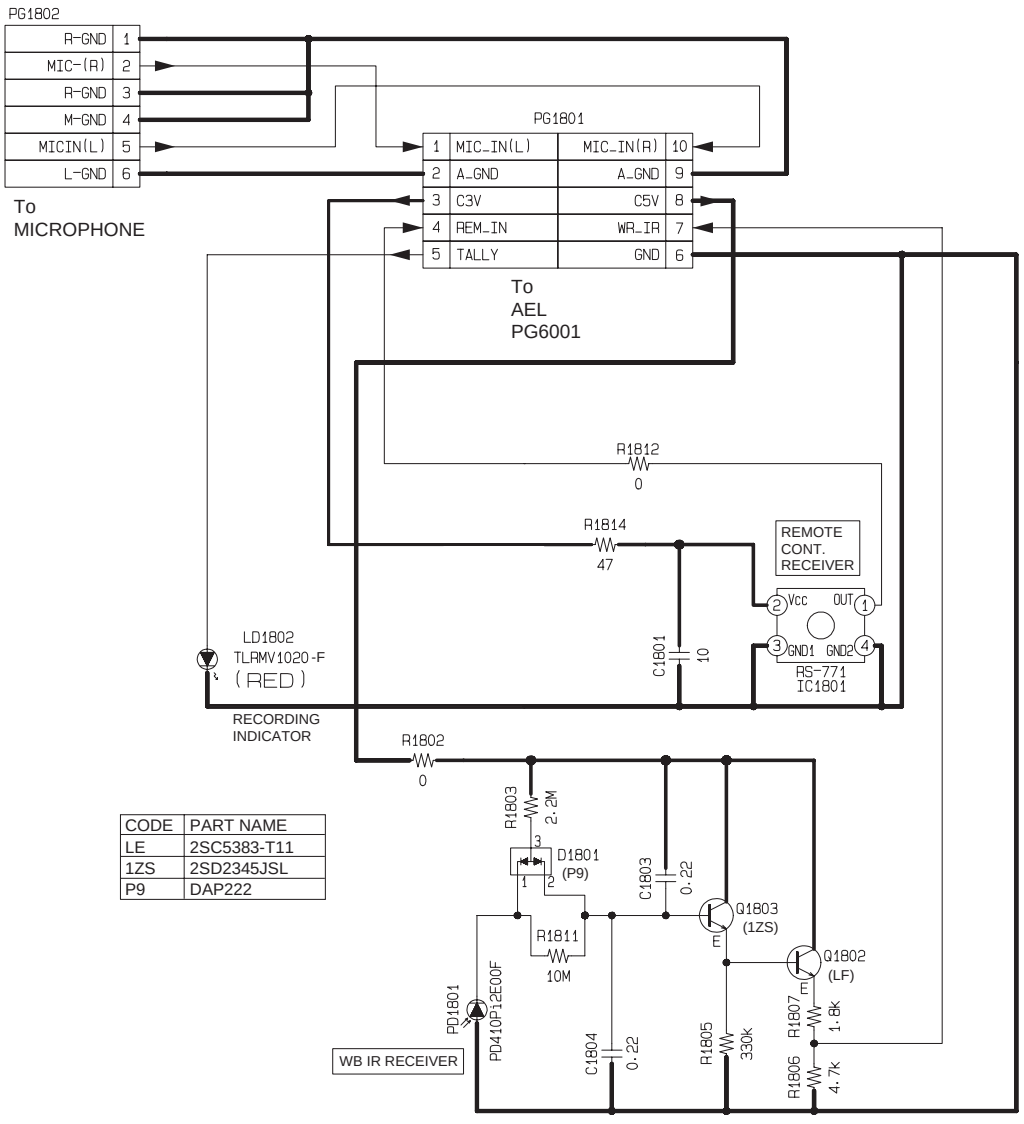

18PIN
20PIN
[For VDR-M95]
PG0151
PG3701
AEL
PG0152
10PIN
FLASH UNIT
PG8061
CARD SLOT
SHE-H
CN0151
To ACCESSORY SHOE
(8PIN)
70PIN
REAR COVER
(POWER SWITCH/REC BUTTON/ ZOOM/PHOT/DISC EJECT
BATTERY TERMINAL
LOCK UNIT
8PIN
14PIN
PG9302
51PIN
PG9001
PG9101
PG9301
DRV
HDL-5
PG9501
12PIN
20PIN
To SPINDLE/ SLIDER MOTOR
DISC DRIVE UNIT

12.2. VDR-M75 wiring diagram




18PIN
20PIN
PG3701
AEL
PG8061
CARD SLOT
PG0151
SHE-M
CN0151
To
ACCESSORY SHOE
(8PIN)
70PIN
REAR COVER
(POWER SWITCH/REC BUTTON/
ZOOM/PHOT/DISC EJECT)
BATTERY
TERMINAL
LOCK
UNIT
8PIN
14PIN
PG9302
PG9001
51PIN
PG9101
PG9301
DRV
HDL-5
PG9501
12PIN
20PIN
To
SPINDLE/
SLIDER
MOTOR
DISC DRIVE UNIT

12.3. FRT-H/-M/-P schematic diagram



12.4. AEL schematic diagram

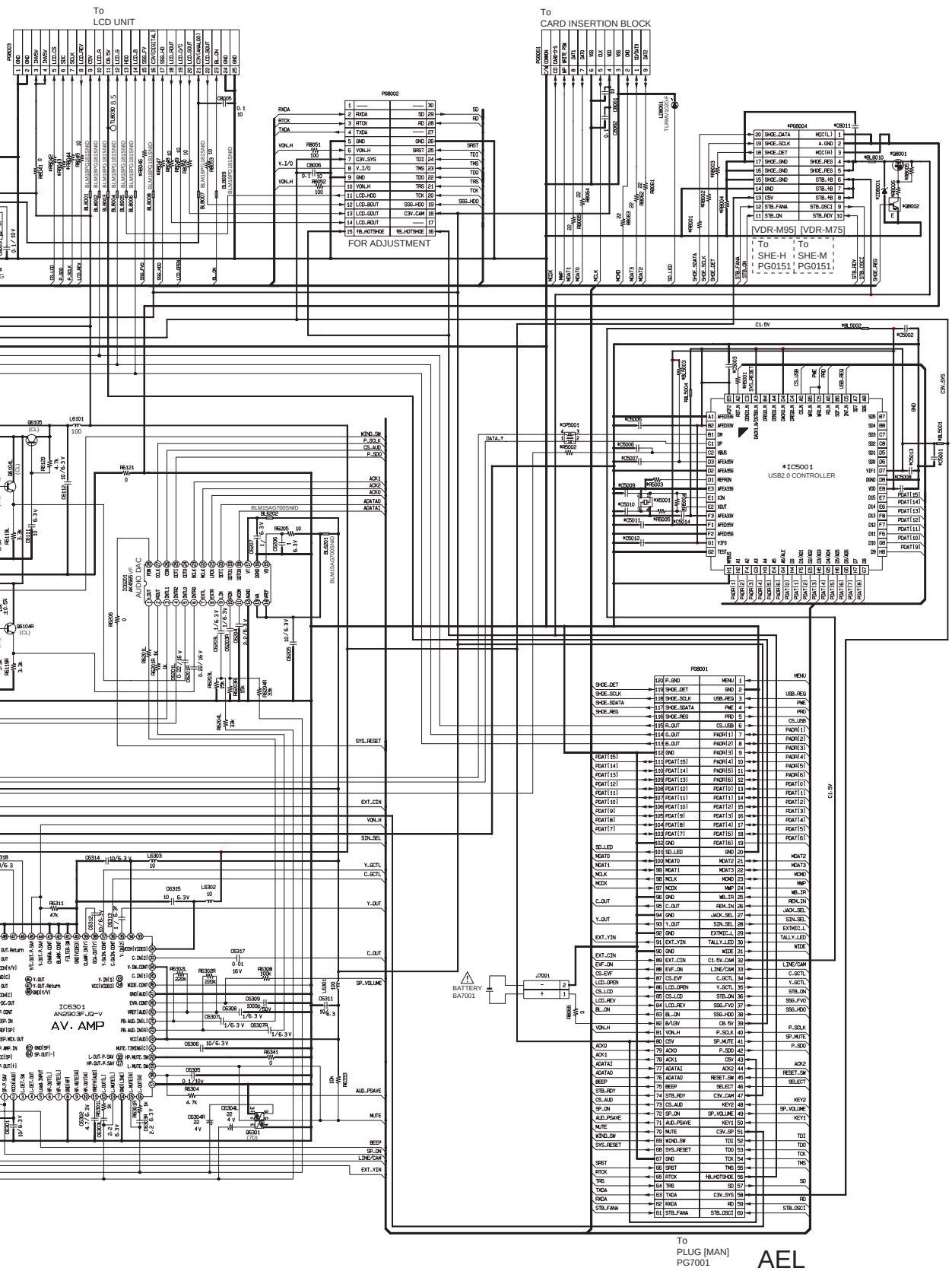
Note: Components marked ⍙ are different between VDR-M95, VDR-M75,VDR-M55 and VDR-M53: Refer to the "Parts Difference Table" for the different components.

Parts Difference Table

Symbol No.	Location	M95/M75	M55	M53
BL5001	8D	BLM15AG700SN1D	BLM15AG700SN1D	Not Provided
BL5002	8E	BLM15AG700SN1D	BLM15AG700SN1D	Not Provided
BL5003	7E	Jumper	Jumper	Not Provided
BL5004	7E	BLM15AG700SN1D	BLM15AG700SN1D	Not Provided
BL8010	8F	BLM11B750SAPT	Not Provided	Not Provided
C5001	8D	10	10	Not Provided
C5002	8E	10	10	Not Provided
C5003	8E	0.01	0.01	Not Provided
C5005	7D	0.01	0.01	Not Provided
C5006	7D	4.7	4.7	Not Provided
C5007	7D	0.01	0.01	Not Provided
C5008	8D	0.01	0.01	Not Provided
C5009	7D	15P	15P	Not Provided
C5010	7D	15P	15P	Not Provided
C5011	7D	0.01	0.01	Not Provided
C5012	7D	0.01	0.01	Not Provided
C5013	8D	0.01	0.01	Not Provided
C5014	7D	0.01	0.01	Not Provided
C6027	3B	1	Not Provided	Not Provided
C6029	3B	0.1	Not Provided	Not Provided
C8011	8F	1000P	Not Provided	Not Provided
CP5001	7D	BM10631R	BM10631R	Not Provided
IC5001	8D	M66592WG	M66592WG	Not Provided
IC6021	3B	MM1503XNRE-LF	Not Provided	Not Provided
PG8004	8F	20P	Not Provided	Not Provided
Q6027	3B	Not Provided	2SC5343E-CL(CL)	2SC5343E-CL(CL)
Q6028	3B	2SC5343E-CL(CL)	Not Provided	Not Provided
Q6029	3B	2SC5343E-CL(CL)	Not Provided	Not Provided
Q6031	3B	2SC5343E-CL(CL)	Not Provided	Not Provided
Q8001	8F	RTR020P02TL(TX)	Not Provided	Not Provided
Q8002	8E	RT1N144U-T11-1(N5)	Not Provided	Not Provided
R5001	8E	0(Jumper)	0(Jumper)	Not Provided
R5002	7D	0(Jumper)	0(Jumper)	Not Provided
R5003	7D	5.6k 1%	5.6k 1%	Not Provided
R5004	7D	1M	1M	Not Provided
R5005	7D	1K	1K	Not Provided
R6027	3B	560	Not Provided	Not Provided
R6031	3B	100k	Not Provided	Not Provided
R6032	3A	100k	Not Provided	Not Provided
R6033	3A	2.2k	Not Provided	Not Provided
R6035	3B	Not Provided	100k	100k
R6036	3B	Not Provided	100k	100k
R6037	3B	Not Provided	1k	1k
R6039	3B	1.5k	Not Provided	Not Provided
R6041	3A	1.5k	Not Provided	Not Provided
R8001	7E	1k	Not Provided	Not Provided
R8002	7E	1k	Not Provided	Not Provided
R8003	7F	1k	Not Provided	Not Provided
R8004	7E	0(Jumper)	Not Provided	Not Provided
R8005	8F	470k	Not Provided	Not Provided
R8006	8E	220k	Not Provided	Not Provided
R8042	5F	10	1k	1k
R8043	5F	10	1k	1k
R8044	5F	10	1k	1k
R8046	5F	10	1k	1k
R8047	5F	10	1k	1k
X5001	7D	24MHz	24MHz	Not Provided
ZD8001	8E	EDZTE6113B	Not Provided	Not Provided

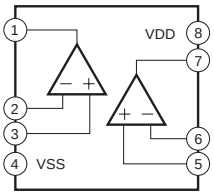
CODE	PART NAME
AY	2SA1980EF-AY
CL	2SC5343E-CL
TX	RTR020P02TL
N2	RT1N241U-T11-1
N5	RT1N144U-T11-1
P5	RT1P144U-T11-1
7D	MUN5214DW1T1
3X	SUT483J
MI	MA132K

One voltage : PB or REC mode.
Two voltages : PB and (REC) mode.

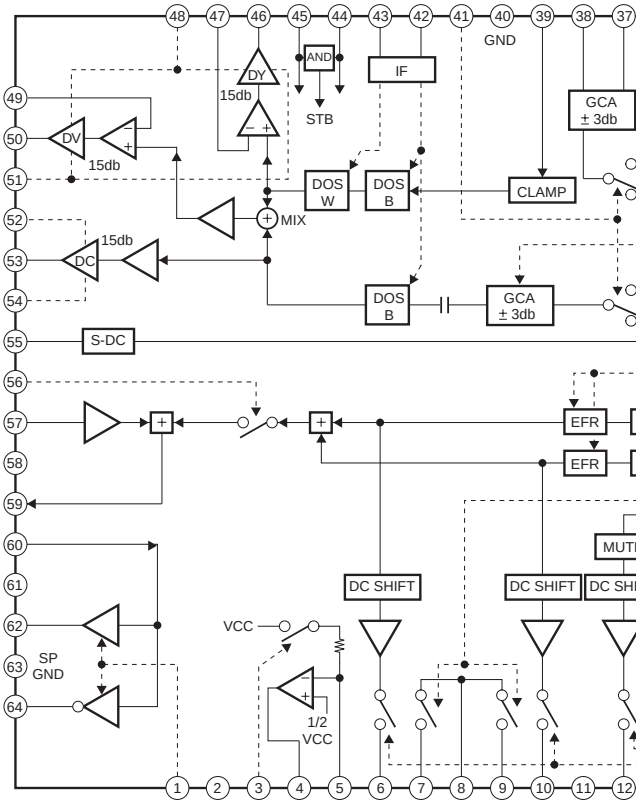

To
LCD UNIT
To
CARD INSERTION BLOCK
FOR ADJUSTMENT
[VDR-M95] [VDR-M75]
To
SHE-H
PG0151
To
SHE-M
PG0151
*IC5001
USB2.0 CONTROLLER
IC6301
AN2903FJQ-V
AV. AMP
BATTERY
BA7001
To
PLUG [MAN]
PG7001
AEL

12.5. IC block schematic diagram

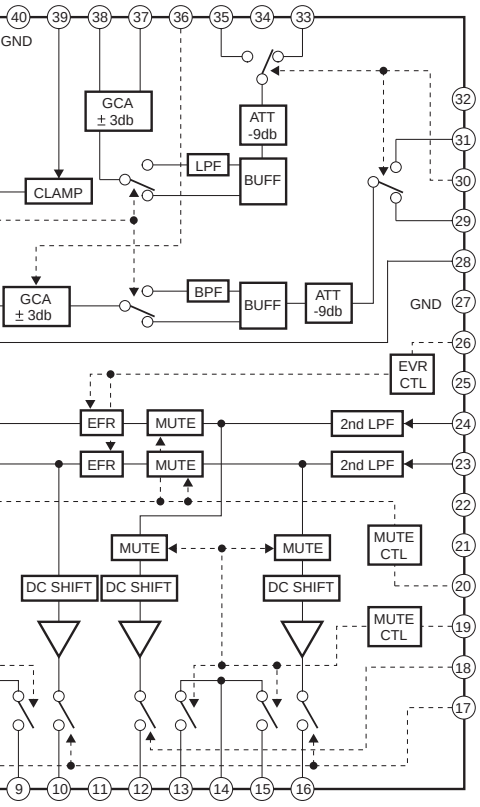
IC1403
NJU7018VTE1



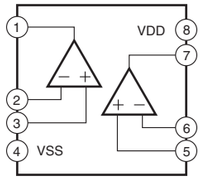
IC6301
AN2903FJQ



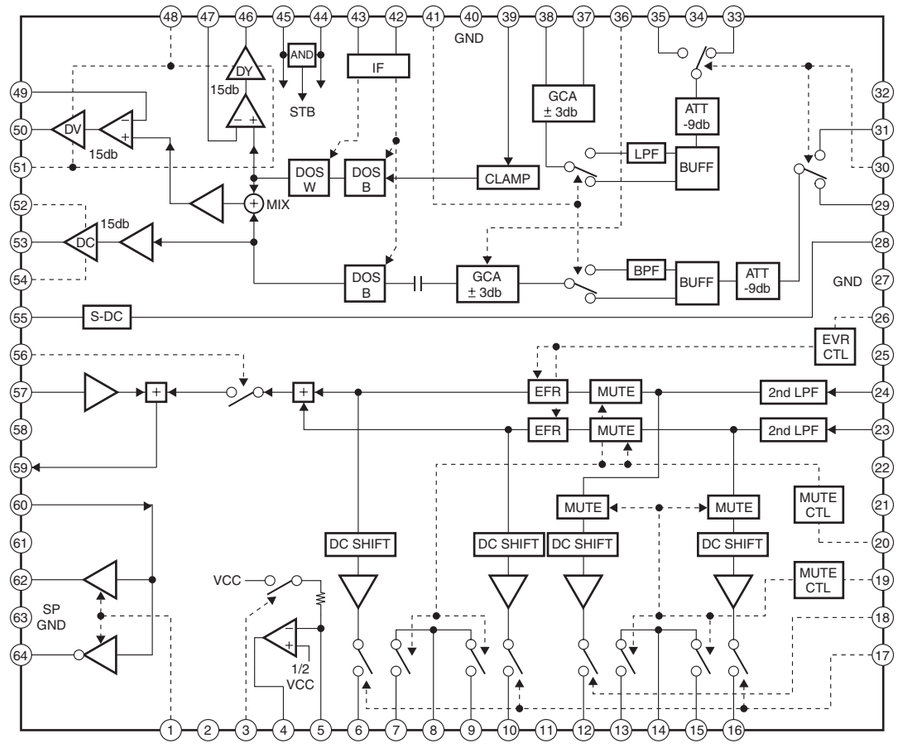
01
FJQ


40
39
38
37
36
35
34
33
GND
GCA
± 3db
ATT
-9db
LPF
BUFF
CLAMP
32
31
30
29
28
GCA
± 3db
BPF
BUFF
ATT
-9db
GND
27
26
EVR
CTL
25
EFR
MUTE
2nd LPF
24
EFR
MUTE
2nd LPF
23
22
MUTE
MUTE
MUTE
CTL
21
DC SHIFT
DC SHIFT
DC SHIFT
20
MUTE
CTL
19
18
17
9
10
11
12
13
14
15
16

IC1403
NJU7018VTE1



IC6301
AN2903FJQ



Note: Components marked ⌟ are different between VDR-M95, VDR-M75,VDR-M55 and VDR-M53: Refer to the "Parts Difference Table" for the different components.

Parts Difference Table

Synbol No.	Location	M95/M75	M55	M53
BL5001	8D	BLM15AG700SN1D	BLM15AG700SN1D	Not Provided
BL5002	8E	BLM15AG700SN1D	BLM15AG700SN1D	Not Provided
BL5003	7E	Jumper	Jumper	Not Provided
BL5004	7E	BLM15AG700SN1D	BLM15AG700SN1D	Not Provided
BL8010	8F	BLM11B750SAPT	Not Provided	Not Provided
C5001	8D	10	10	Not Provided
C5002	8E	10	10	Not Provided
C5003	8E	0.01	0.01	Not Provided
C5005	7D	0.01	0.01	Not Provided
C5006	7D	4.7	4.7	Not Provided
C5007	7D	0.01	0.01	Not Provided
C5008	8D	0.01	0.01	Not Provided
C5009	7D	15P	15P	Not Provided
C5010	7D	15P	15P	Not Provided
C5011	7D	0.01	0.01	Not Provided
C5012	7D	0.01	0.01	Not Provided
C5013	8D	0.01	0.01	Not Provided
C5014	7D	0.01	0.01	Not Provided
C6027	3B	1	Not Provided	Not Provided
C6029	3B	0.1	Not Provided	Not Provided
C8011	8F	1000P	Not Provided	Not Provided
CP5001	7D	BM10631R	BM10631R	Not Provided
IC5001	8D	M66592WG	M66592WG	Not Provided
IC6021	3B	MM1503XNRE-LF	Not Provided	Not Provided
PG8004	8F	20P	Not Provided	Not Provided
Q6027	3B	Not Provided	2SC5343E-CL(CL)	2SC5343E-CL(CL)
Q6028	3B	2SC5343E-CL(CL)	Not Provided	Not Provided
Q6029	3B	2SC5343E-CL(CL)	Not Provided	Not Provided
Q6031	3B	2SC5343E-CL(CL)	Not Provided	Not Provided
Q8001	8F	RTR020P02TL(TX)	Not Provided	Not Provided
Q8002	8E	RT1N144U-T11-1(N5)	Not Provided	Not Provided
R5001	8E	0(Jumper)	0(Jumper)	Not Provided
R5002	7D	0(Jumper)	0(Jumper)	Not Provided
R5003	7D	5.6k 1%	5.6k 1%	Not Provided
R5004	7D	1M	1M	Not Provided
R5005	7D	1K	1K	Not Provided
R6027	3B	560	Not Provided	Not Provided
R6031	3B	100k	Not Provided	Not Provided
R6032	3A	100k	Not Provided	Not Provided
R6033	3A	2.2k	Not Provided	Not Provided
R6035	3B	Not Provided	100k	100k
R6036	3B	Not Provided	100k	100k
R6037	3B	Not Provided	1k	1k
R6039	3B	1.5k	Not Provided	Not Provided
R6041	3A	1.5k	Not Provided	Not Provided
R8001	7E	1k	Not Provided	Not Provided
R8002	7E	1k	Not Provided	Not Provided
R8003	7F	1k	Not Provided	Not Provided
R8004	7E	0(Jumper)	Not Provided	Not Provided
R8005	8F	470k	Not Provided	Not Provided
R8006	8E	220k	Not Provided	Not Provided
R8042	5F	10	1k	1k
R8043	5F	10	1k	1k
R8044	5F	10	1k	1k
R8046	5F	10	1k	1k
R8047	5F	10	1k	1k
X5001	7D	24MHz	24MHz	Not Provided
ZD8001	8E	EDZTE6113B	Not Provided	Not Provided

CODE	PART NAME
AY	2SA1980EF-AY
CL	2SC5343E-CL
TX	RTR020P02TL
N2	RT1N241U-T11-1
N5	RT1N144U-T11-1
P5	RT1P144U-T11-1
7D	MUN5214DW1T1
3X	SUT483J
MI	MA132K

One voltage : PB or REC mode.
Two voltages : PB and (REC) mode.

To EVF UNIT
To SPEAKER
To LCD UNIT
To CARD INSERTION BLOCK
To L CASE
To FRT-H/FRT-M/FRT-P PG1801
To AVJ-H/AVJ-M/AVJ-P PG1901
To SHE-H PG0151
To SHE-M PG0151
To PLUG [MAN] PG7001

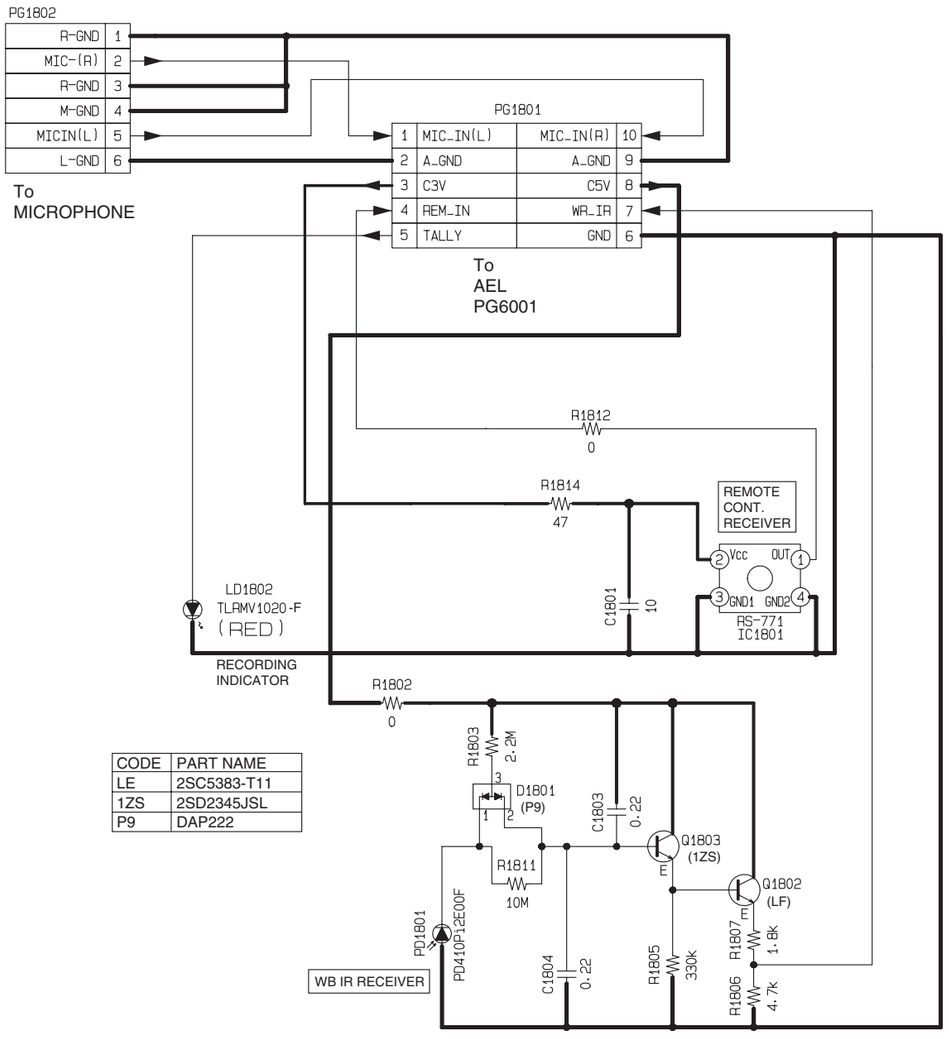
FOR ADJUSTMENT

[VDR-M95] [VDR-M75]

IC3701 NJM2870AF28 2.5V REG
IC6301 AN29036F_42-V AV. AMP
IC6021 AK4565VQ A/D
IC8001 NJM2870F34 SHOE REG
*1C5001 USB2.0 CONTROLLER

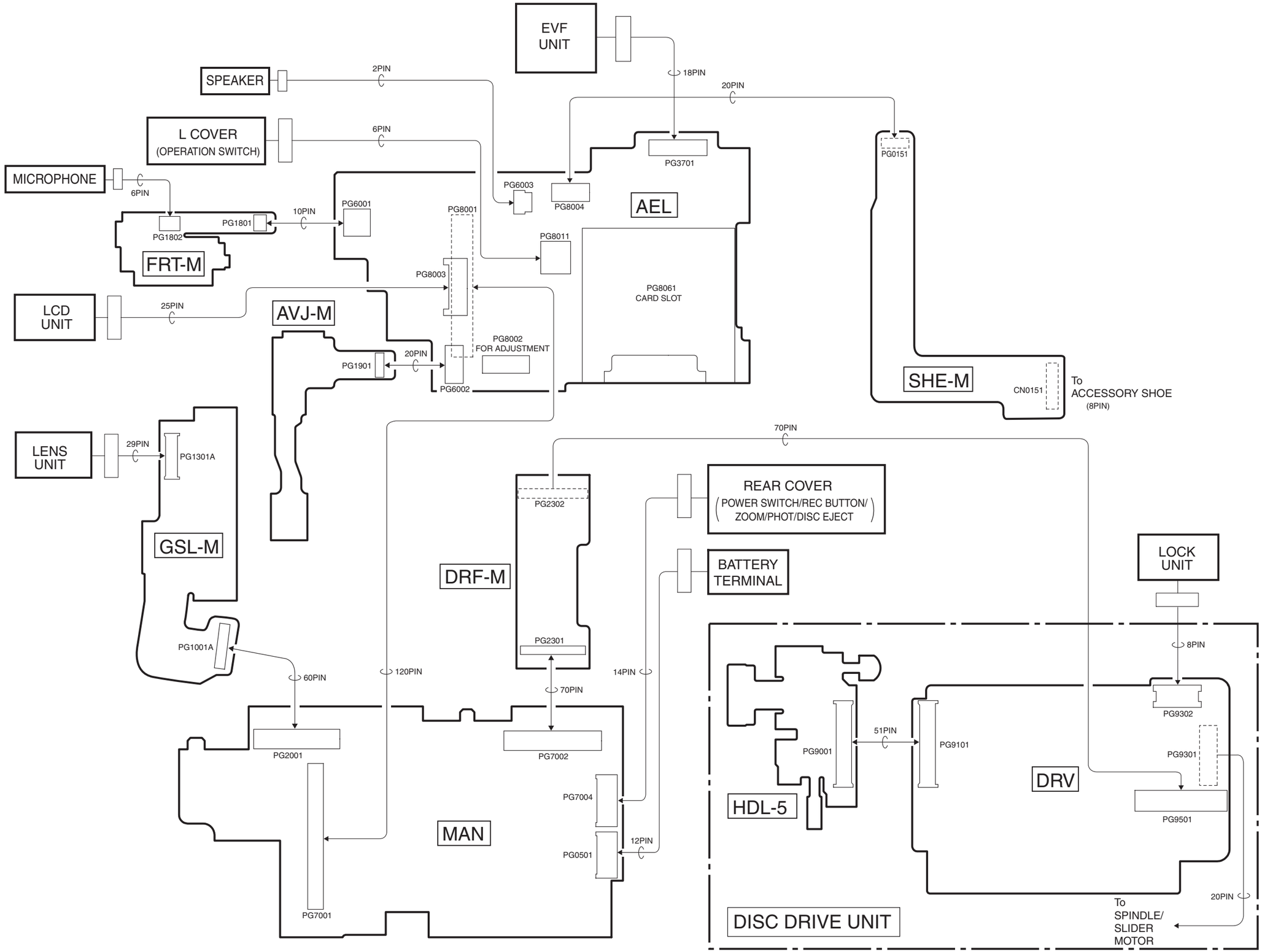
BATTERY BA7001

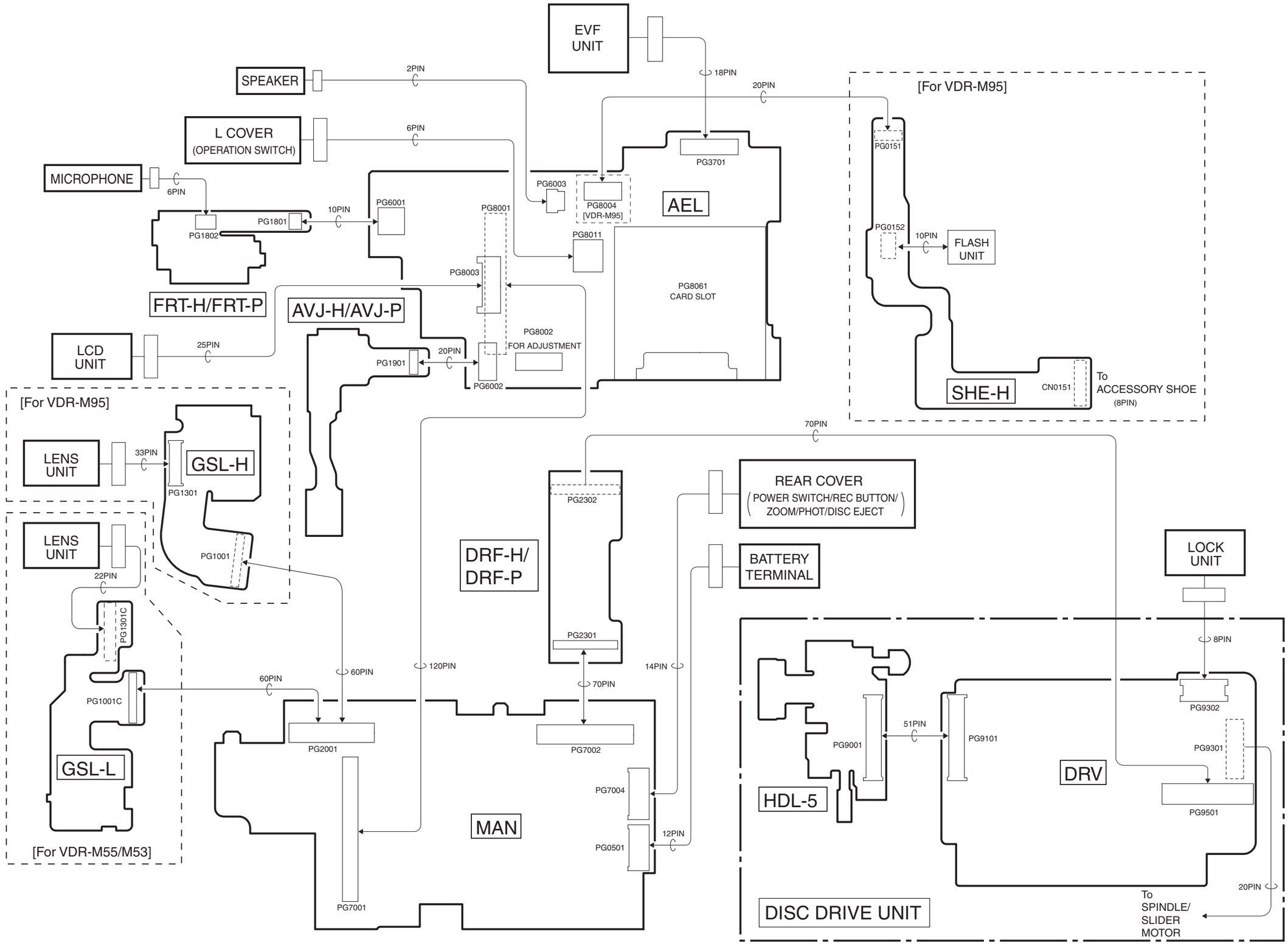
AEL



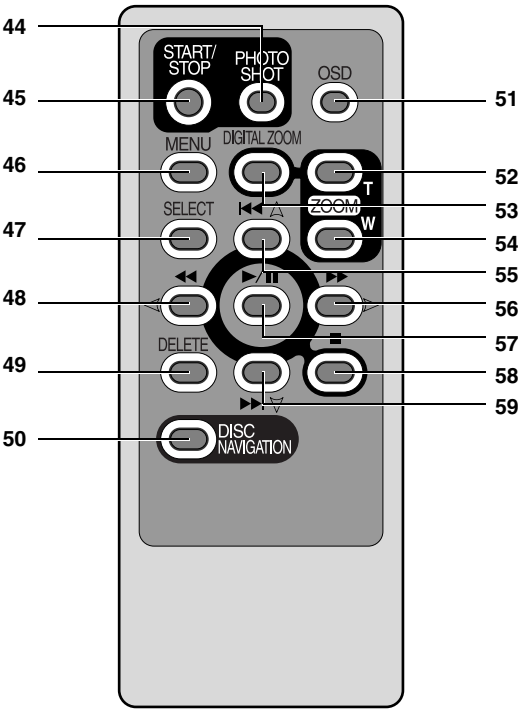
CODE	PART NAME
LE	2SC5383-T11
1ZS	2SD2345JSL
P9	DAP222

FRT-H
FRT-M
FRT-P


EVF UNIT
SPEAKER
2PIN
18PIN
20PIN
L COVER (OPERATION SWITCH)
6PIN
PG3701
PG0151
MICROPHONE
6PIN
PG6003
PG8004
AEL
PG6001
10PIN
PG8001
PG1801
PG1802
PG8011
FRT-M
PG8003
PG8061 CARD SLOT
LCD UNIT
25PIN
AVJ-M
PG8002 FOR ADJUSTMENT
20PIN
PG1901
PG6002
SHE-M
CN0151
To ACCESSORY SHOE (8PIN)
70PIN
LENS UNIT
29PIN
PG1301A
PG2302
REAR COVER
(POWER SWITCH/REC BUTTON/ ZOOM/PHOT/DISC EJECT
GSL-M
DRF-M
BATTERY TERMINAL
LOCK UNIT
PG1001A
PG2301
8PIN
60PIN
120PIN
14PIN
70PIN
PG9302
PG2001
PG7002
51PIN
PG9001
PG9101
PG9301
DRV
PG7004
HDL-5
PG9501
MAN
12PIN
PG0501
20PIN
To SPINDLE/ SLIDER MOTOR
PG7001
DISC DRIVE UNIT


EVF UNIT
SPEAKER
2PIN
18PIN
20PIN
L COVER (OPERATION SWITCH)
6PIN
MICROPHONE
6PIN
PG3701
PG6003
PG8004 [VDR-M95]
AEL
PG6001
10PIN
PG8001
PG1801
PG1802
PG8011
PG8003
PG8061 CARD SLOT
FRT-H/FRT-P
AVJ-H/AVJ-P
LCD UNIT
25PIN
PG8002 FOR ADJUSTMENT
PG1901
20PIN
PG6002
[For VDR-M95]
PG0151
PG0152
10PIN
FLASH UNIT
SHE-H
CN0151
To ACCESSORY SHOE (8PIN)
70PIN
[For VDR-M95]
LENS UNIT
33PIN
GSL-H
PG1301
PG2302
REAR COVER
(POWER SWITCH/REC BUTTON/ ZOOM/PHOT/DISC EJECT)
LENS UNIT
22PIN
PG1001
DRF-H/ DRF-P
BATTERY TERMINAL
LOCK UNIT
PG1301C
PG2301
8PIN
60PIN
60PIN
120PIN
14PIN
70PIN
PG1001C
PG9302
PG2001
PG7002
51PIN
PG9001
PG9101
PG9301
GSL-L
PG7004
DRV
HDL-5
PG9501
MAN
12PIN
PG0501
20PIN
To SPINDLE/ SLIDER MOTOR
PG7001
[For VDR-M55/M53]
DISC DRIVE UNIT

Not included with VDR-M53PP.



44 Photo shot button

45 START/STOP (REC) button

46 MENU button

47 SELECT button

48 Reverse search button

49 DELETE button

50 DISC NAVIGATION button

51 OSD (Display) button

52 ZOOM T button

53 DIGITAL ZOOM button

54 ZOOM W button

55 Reverse skip button

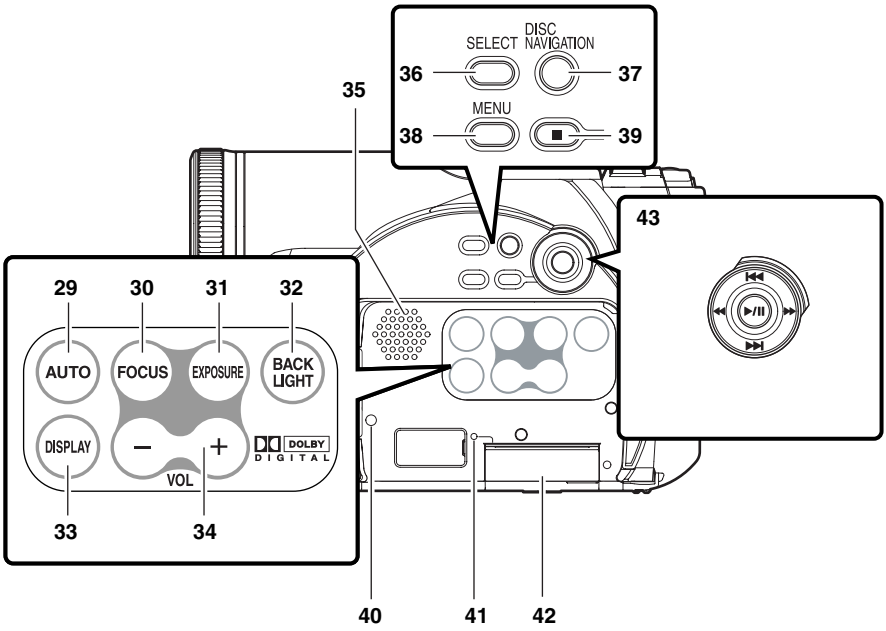
56 Forward/Search button

57 Play/pause button

58 Stop button

59 Forward skip button

* The buttons on remote controller will function the same as those on DVD Video Camera.



29 AUTO button
To switch the DVD Video Camera to full automatic.

30 FOCUS button
To switch between manual focus and auto-focus.

31 EXPOSURE button
Press this button to adjust the exposure.

32 BACK LIGHT (backlight compensation) button
Press this button when subject is being illuminated from behind.

33 DISPLAY (Screen display) button
Press this button to display the details of image being played back or camera setting status, or to switch the display off.

34 Volume control buttons (VOL)/ < ; buttons
To adjust the volume of sound from speaker, etc.

35 Speaker

36 SELECT button

37 DISC NAVIGATION button

38 MENU button
Press this button to display the menu for setting camera functions and Disc Navigation.
The camera menu will appear even if disc is not loaded.

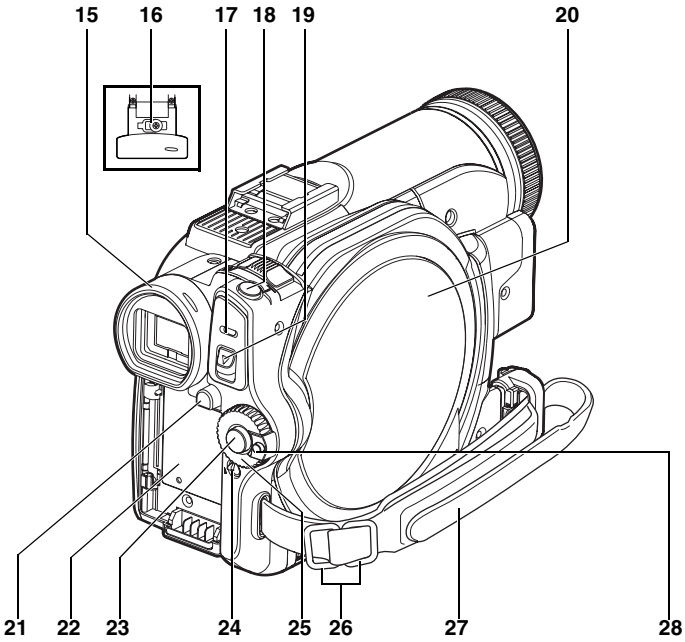
39 Stop/cancel button
To end playback or cancel menu setting.

40 RESET button
To reset all settings to defaults (status when the DVD Video Camera was shipped from the factory).

41 CARD ACCESS indicator

42 Card insertion block

43 Control buttons
Used for playback, pausing, fast forwarding, and rewinding. Also used as directional buttons (up, down, left, right) and to make a selection when selecting scenes or menus.



15 Viewfinder

16 Diopter control
To adjust the focus of image appearing in the viewfinder (pull out the viewfinder).

17 ACCESS/PC indicator (VDR-M55PP/VDR-M75PP/VDR-M95PP)
ACCESS indicator* (VDR-M53PP)
Will blink or light when the disc in DVD Video Camera is accessed (write or read is executed) or the DVD Video Camera is connected to PC.

18 Photo shot button
Used when shooting still images.

19 DISC EJECT lever
Press and release this lever to open disc insertion block.

20 Disc insertion block

21 BATTERY EJECT button
Press it when removing the battery pack.

* Labeled “ACCESS/PC indicator” in this manual.

22 Battery attachment platform

23 Record (REC) button
Used when recording movies.

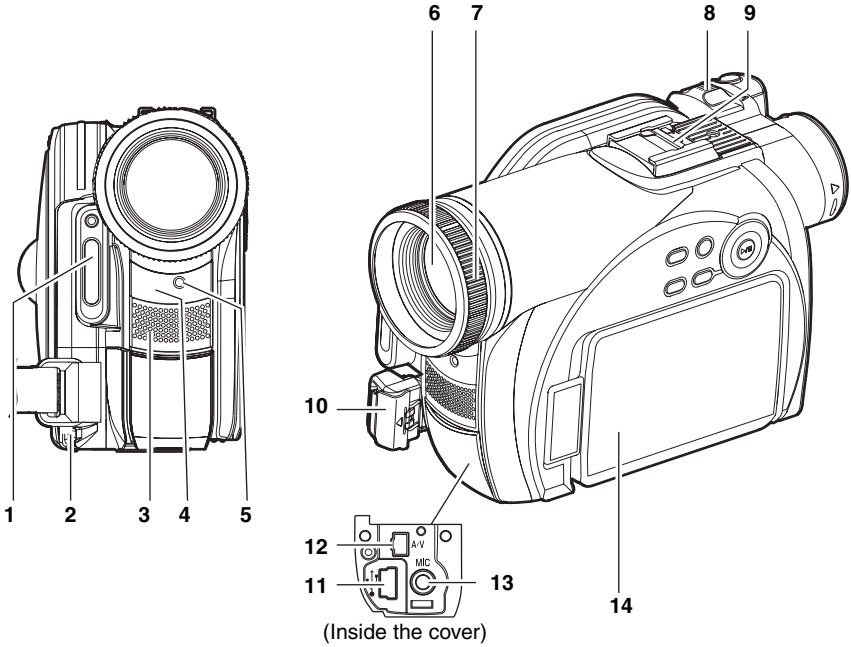
24 LOCK switch
In mode, set the LOCK switch to (to the upper left) to lock the power switch so that it does not accidentally move to .
From mode, you cannot move the LOCK switch to the upper left to lock the power switch.

25 Power switch

26 Shoulder belt attachment buckles

27 Grip Belt (Free Style Grip Belt)

28 Power switch toggle button
With this button depressed, the power switch can be turned.
However, when set to “OFF,” the power switch can be turned even if this button is not depressed.



1 Built-in flash (VDR-M95PP)
There is a sensor at the top of the flash.

2 Lens cap string attachment hole

3 Internal stereo microphone

4 Infrared receiver (VDR-M55PP/VDR-M75PP/VDR-M95PP)
When the remote controller is used to operate the DVD Video Camera, this receiver will receive the infrared signal.

5 Recording indicator
The red indicator will light during recording.

6 Optical 10x zoom lens (VDR-M75PP/VDR-M95PP)
Optical 24× zoom lens (VDR-M53PP/VDR-M55PP)

7 Lens hood

8 Zoom lever
Push the lever to the T side for telephoto, or to the W side for wide-angle.

9 Accessory shoe
Attach the optional flash.

10 Lock cover and Lock button

11 USB port (VDR-M55PP/VDR-M75PP/VDR-M95PP)

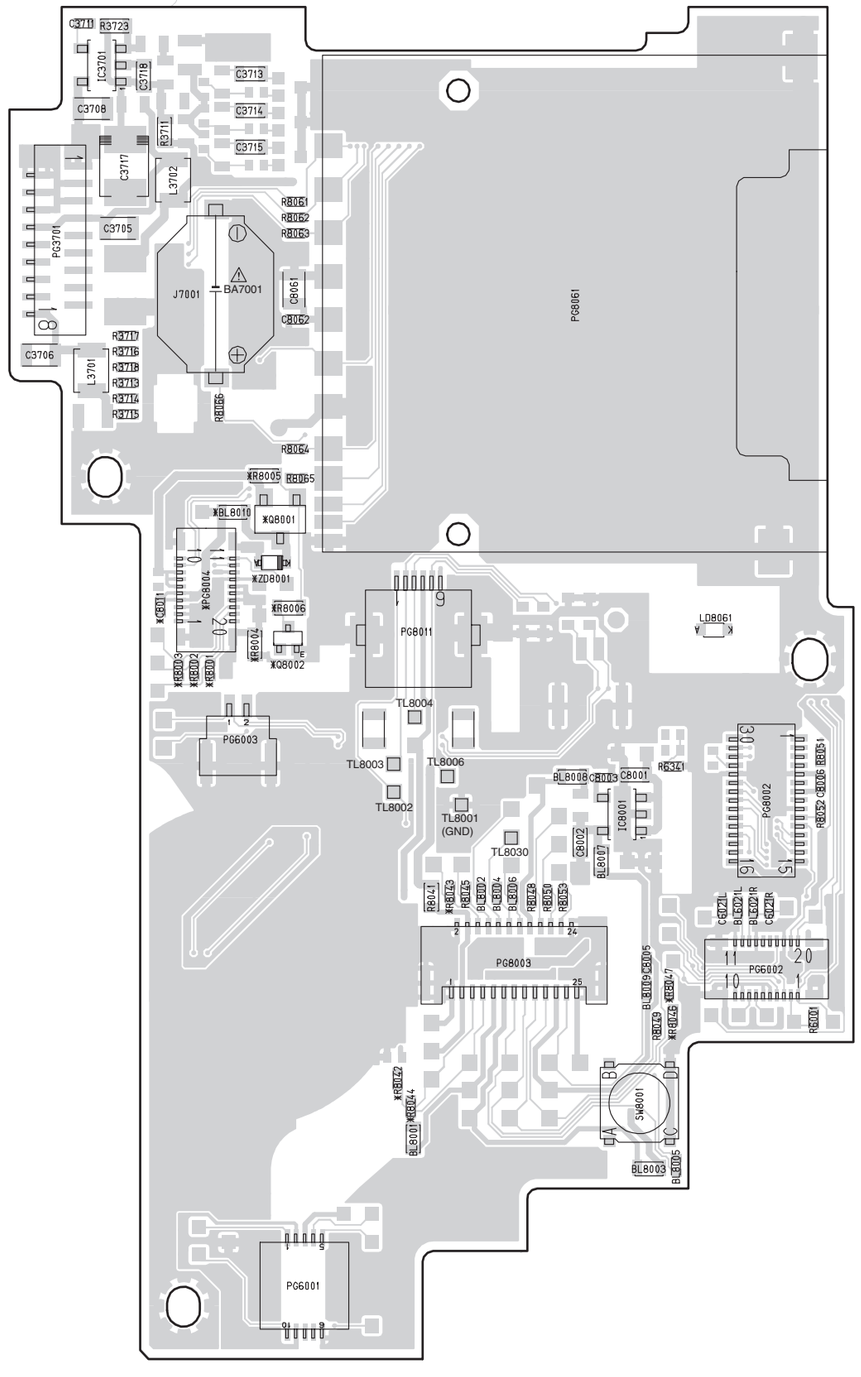
12 AV input/output jack

13 External microphone jack

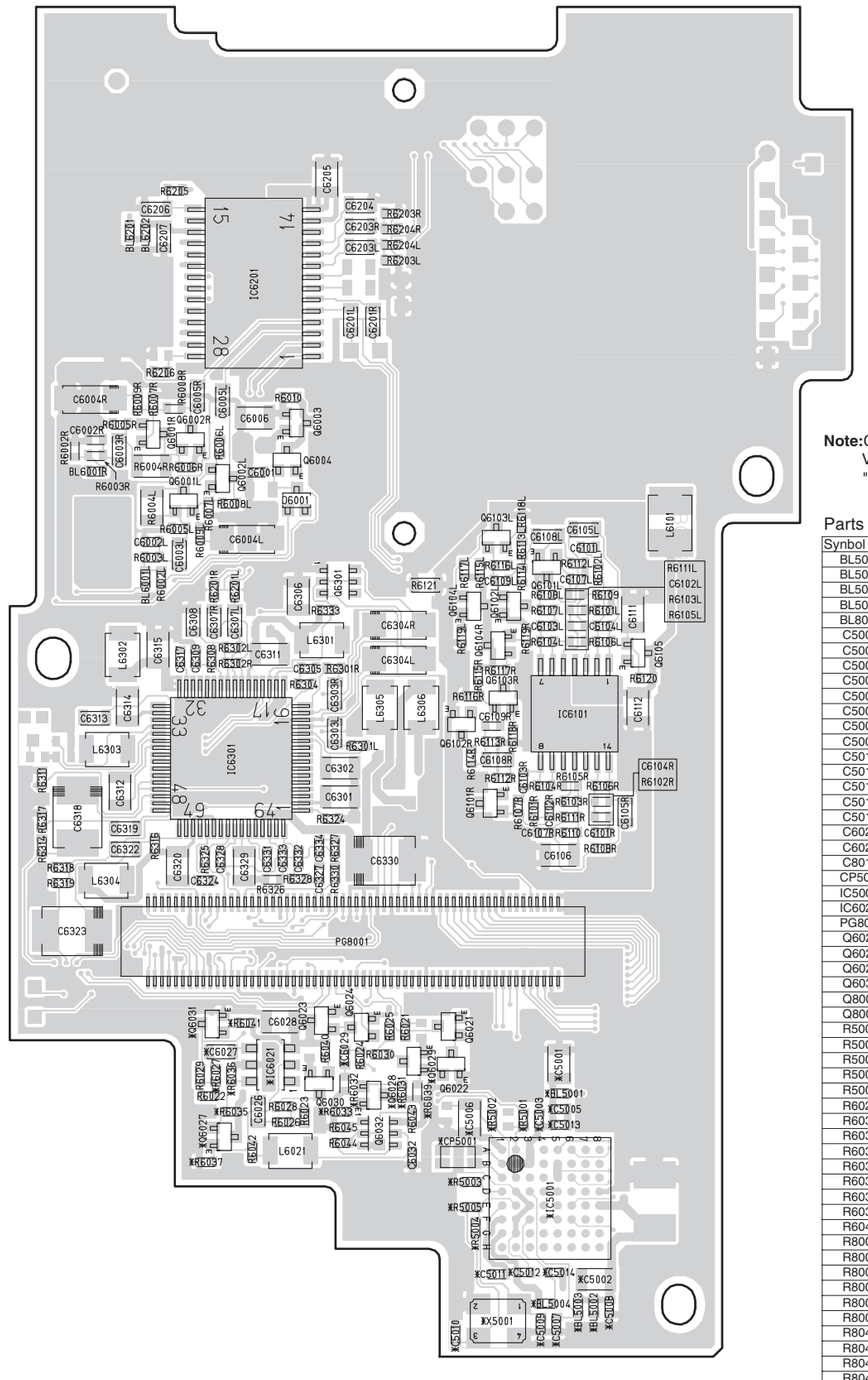
14 2.5" type Liquid Crystal Display (LCD) (inside)

Although the external appearances of VDR-M53PP, VDR-M55PP, VDR-M75PP and VDR-M95PP are different, they are both operated in the same way. VDR-M95PP illustrations are used in this manual.

AEL -SIDE A-



AEL -SIDE B-

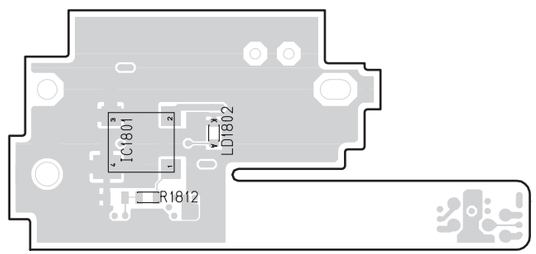


Note: Components marked ⋆ are different between VDR-M95, VDR-M75,VDR-M55 and VDR-M53: Refer to the "Parts Difference Table" for the different components.

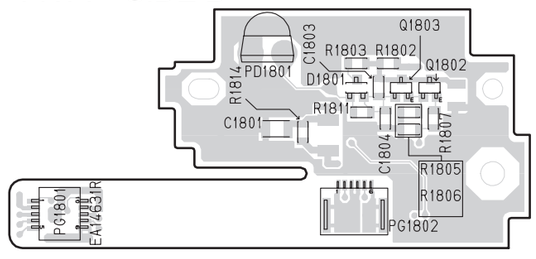
Parts Difference Table

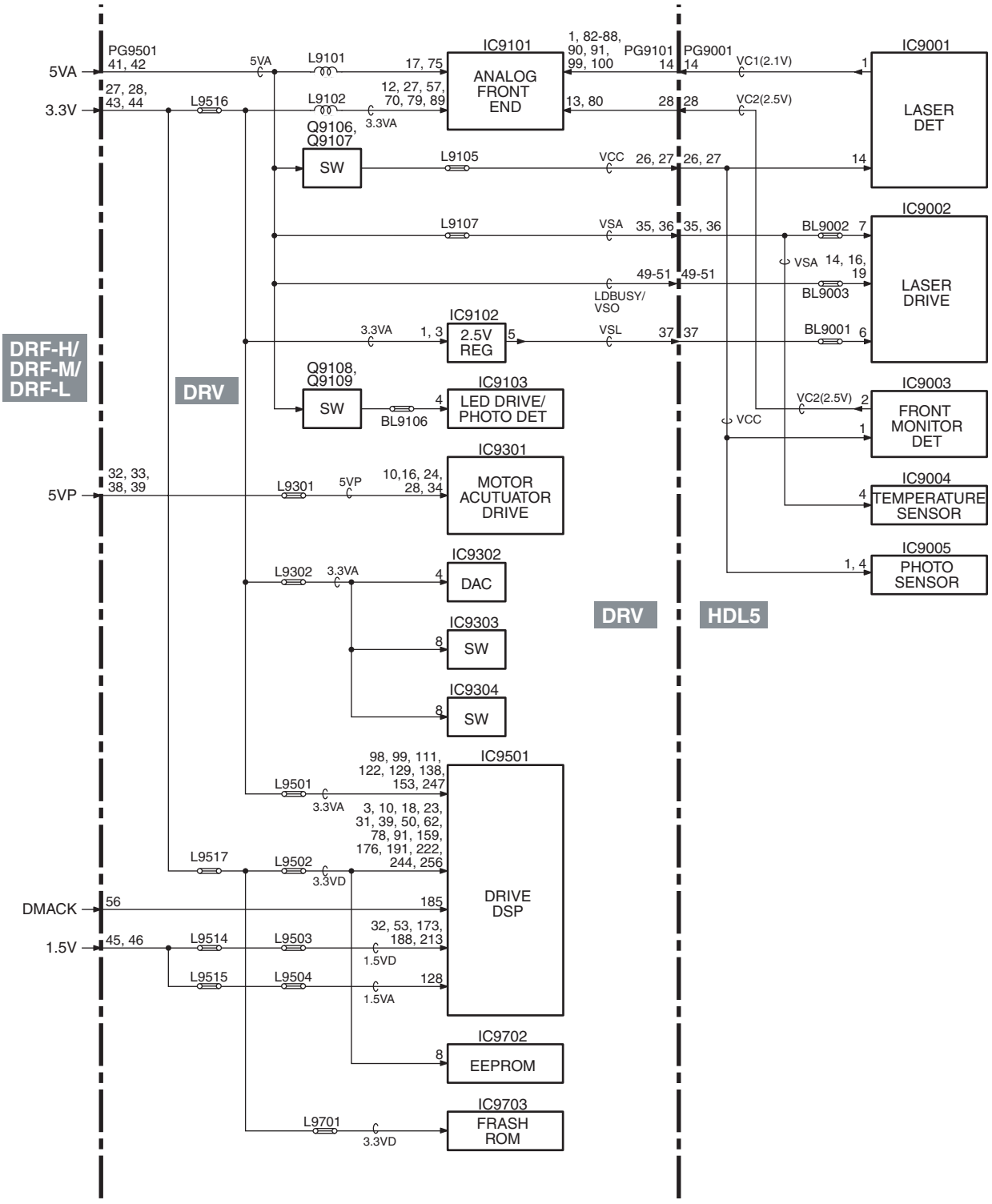
Synbol No.	Location	M95/M75	M55	M53
BL5001	6B	BLM15AG700SN1D	BLM15AG700SN1D	Not Provided
BL5002	6A	BLM15AG700SN1D	BLM15AG700SN1D	Not Provided
BL5003	6A	Jumper	Jumper	Not Provided
BL5004	6A	BLM15AG700SN1D	BLM15AG700SN1D	Not Provided
BL8010	1D	BLM11B750SAPT	Not Provided	Not Provided
C5001	6B	10	10	Not Provided
C5002	6A	10	10	Not Provided
C5003	6B	0.01	0.01	Not Provided
C5005	6B	0.01	0.01	Not Provided
C5006	5B	4.7	4.7	Not Provided
C5007	6A	0.01	0.01	Not Provided
C5008	6A	0.01	0.01	Not Provided
C5009	6A	15P	15P	Not Provided
C5010	5A	15P	15P	Not Provided
C5011	6A	0.01	0.01	Not Provided
C5012	6A	0.01	0.01	Not Provided
C5013	6B	0.01	0.01	Not Provided
C5014	6A	0.01	0.01	Not Provided
C6027	5B	1	Not Provided	Not Provided
C6029	5B	0.1	Not Provided	Not Provided
C8011	1D	1000P	Not Provided	Not Provided
CP5001	5B	BM10631R	BM10631R	Not Provided
IC5001	6A	M66592WG	M66592WG	Not Provided
IC6021	5B	MM1503XNRE-LF	Not Provided	Not Provided
PG8004	1D	20P	Not Provided	Not Provided
Q6027	4B	Not Provided	2SC5343E-CL(CL)	2SC5343E-CL(CL)
Q6028	5B	2SC5343E-CL(CL)	Not Provided	Not Provided
Q6029	5B	2SC5343E-CL(CL)	Not Provided	Not Provided
Q6031	4B	2SC5343E-CL(CL)	Not Provided	Not Provided
Q8001	2D	RTR020P02TL(TX)	Not Provided	Not Provided
Q8002	2C	RT1N144U-T11-1(N5)	Not Provided	Not Provided
R5001	6B	0(Jumper)	0(Jumper)	Not Provided
R5002	6B	0(Jumper)	0(Jumper)	Not Provided
R5003	5B	5.6k 1%	5.6k 1%	Not Provided
R5004	5A	1M	1M	Not Provided
R5005	5A	1K	1K	Not Provided
R6027	5B	560	Not Provided	Not Provided
R6031	5B	100k	Not Provided	Not Provided
R6032	5B	100k	Not Provided	Not Provided
R6033	5B	2.2k	Not Provided	Not Provided
R6035	5B	Not Provided	100k	100k
R6036	5B	Not Provided	100k	100k
R6037	4B	Not Provided	1k	1k
R6039	5B	1.5k	Not Provided	Not Provided
R6041	5B	1.5k	Not Provided	Not Provided
R8001	1C	1k	Not Provided	Not Provided
R8002	1C	1k	Not Provided	Not Provided
R8003	1C	1k	Not Provided	Not Provided
R8004	2C	0(Jumper)	Not Provided	Not Provided
R8005	2D	470k	Not Provided	Not Provided
R8006	2D	220k	Not Provided	Not Provided
R8042	2B	10	1k	1k
R8043	2C	10	1k	1k
R8044	2B	10	1k	1k
R8046	3B	10	1k	1k
R8047	3B	10	1k	1k
X5001	6A	24MHz	24MHz	Not Provided
ZD8001	2D	EDZTE6113B	Not Provided	Not Provided

FRT-H
FRT-M
FRT-P -SIDE A-



FRT-H
FRT-M
FRT-P -SIDE B-




DRF-H/
DRF-M/
DRF-L
DRV
DRV
HDL5
5VA
3.3V
5VP
DMACK
1.5V
PG9501
41, 42
27, 28,
43, 44
32, 33,
38, 39
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45, 46
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L9101
L9516
L9102
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Q9106,
Q9107
SW
L9105
L9107
Q9108,
Q9109
SW
BL9106
L9301
5VP
L9302
3.3VA
L9501
3.3VA
L9517
L9502
3.3VD
L9514
L9503
1.5VD
L9515
L9504
1.5VA
L9701
3.3VD
IC9101
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FRONT
END
17, 75
12, 27, 57,
70, 79, 89
IC9102
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3.3VA
1, 3
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IC9103
LED DRIVE/
PHOTO DET
4
IC9301
MOTOR
ACUTUATOR
DRIVE
10,16, 24,
28, 34
IC9302
DAC
4
IC9303
SW
8
IC9304
SW
8
IC9501
DRIVE
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98, 99, 111,
122, 129, 138,
153, 247
3, 10, 18, 23,
31, 39, 50, 62,
78, 91, 159,
176, 191, 222,
244, 256
185
32, 53, 173,
188, 213
128
IC9702
EEPROM
8
IC9703
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ROM
1, 82-88,
90, 91,
99, 100
PG9101
14
13, 80
28
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26, 27
VSA
35, 36
49-51
LDBUSY/
VSO
VSL
37
PG9001
14
28
VC1(2.1V)
VC2(2.5V)
26, 27
35, 36
49-51
37
IC9001
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DET
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14
IC9002
LASER
DRIVE
BL9002
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VSA
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19
BL9003
BL9001
6
IC9003
FRONT
MONITOR
DET
VC2(2.5V)
2
VCC
1
IC9004
TEMPERATURE
SENSOR
4
IC9005
PHOTO
SENSOR
1, 4

BATTERY TERMINAL
PG0501 1-5
8-12
F0501
F0502
L0501
MAN
IC4009 3.3V REG
VREG3V
+B_SYS
IC4012 RESET PULSE GEN.
IC4013 RESET PULSE GEN.
L0502
Q0501, Q0502 C1.2V REG
L0504
TL0509(C1.2V)
BL4001 C1.2V
L4002
C3V_SYS
IC4002
C1.8V
IC0501 PWM
5, 35
PWM
33, 34
30
31
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Q0503 5V REG
C5V_CAM/LEN5V
L0505
L0506
L0507
IC0504 D1.5V REG
TL0516 (D1.5V)
Q0504 D3V REG
D3V
Q0505 D5V REG
D5V
F0503
L0503
F0504
+B_HOTSHOE
IC4003 SDRAM
IC4004 SDRAM
L4005
C1.8V
MAN
VREG3V
IC4006 REAL TIME CLOCK
TL0510 (C1.8V)
C3V_CAM
IC0503 C1.5V REG
TL0511 (C1.5V)
IC0502 PWM
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Q0506, Q0507 C1.8V REG
L0508
C3V_SYS
Q0508, Q0509 3V REG
L0509
TL0512 (C3V_SYS/ C3V_SYS2)
Q0510 LEN3V REG
L5010
LEN3V
L4004
IC4005 FLASH MEMORY
IC4007 FLASH RESET PULSE GEN
IC4008 SYSTEM RESET PULSE GEN
IC4010 FLASH CS SIGNAL GEN.
IC4011 BATTERY DET SW
VREG3V
T0501
TRANS-FORMER
Q0511 SW
[For M95/M55/M53]
[For M75]
TL0523 (C15/12V)
L0512
C15/12V
IC0505 C-7V REG
C-7V
L0513
C8.5V
TL0514 (C5V_CAM/ LEN5V)
TL0515 (LEN3V)
TL0513 (C3V_CAM)
TL0524 (C-7V)
TL0525 (C8.5V)
[For M95]
IC2008 3V REG
C5V_CAM
C3V
IC2001 SENSOR H-DRIVER
C3V_CAM/C3V
L2000 [For M75/M55/M53]
IC2002 CDS/AGC & A/D CONV.
10, 11, 24, 32
L2003
[For M95]
IC2003 CDS/AGC & A/D CONV.
C3V_CAM
IC2004 SENSOR V-DRIVER
C15/12V
C-7V
IC2005 EEP ROM
C3V_SYS
L2005
L2004
L2012
C3V_SYS2
IC2006
IC2007 BUF
C3V_CAM
IC1301 FOCUS/ ZOOM/IRIS DRIVER
33
37, 48
9, 11
19
LEN5V
Q1302 SW
IC1302 F DET
IC1303 F DET
IC1305 ND DRIVER
IC1306 ND DRIVER
IC1307 ND DRIVER
[For M95/M75]
IC1308 DAC
C3V_CAM
LEN5V
PG7004
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ACCESS/PC INDICATOR
ZOOM LEVER
C3V_CAM
DISC DRIVE UNIT
DRF-H/ DRF-M/ DRF-L
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PG2301 41, 42
PG2302 41, 42
PG9501 41, 42
BL7004
BL7005
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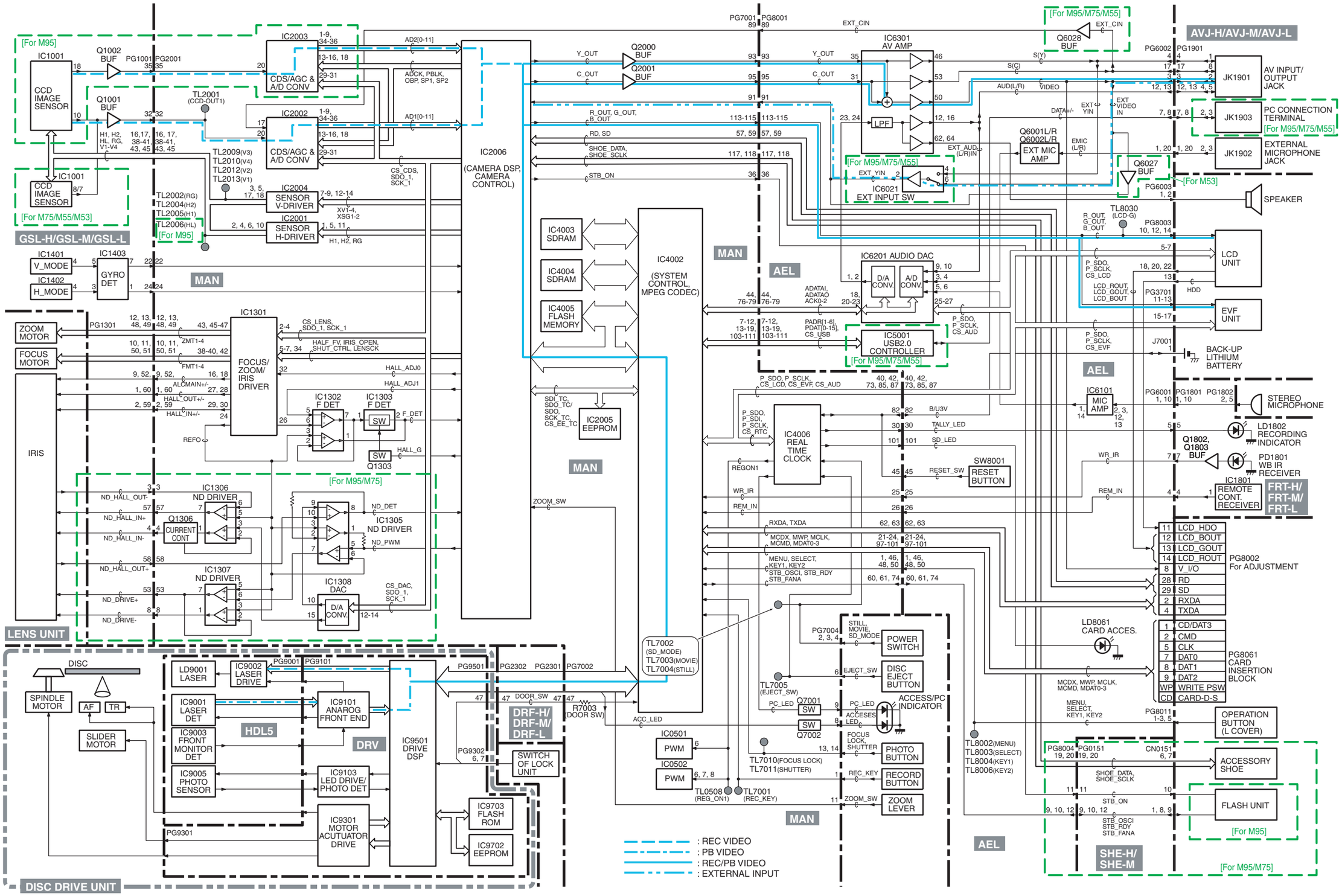
27, 28, 43, 44
56
45, 46
5VA
5VP
3.3V
DMACK
1.5V
D3V
D5V
D1.5V
TL0522 (D5V)
TL0517 (D3V)
AEL
Q8001 SHOE REG
BL8010
PG8004 4, 5
PG0151 4, 5
CN0151 8
SHE-H/ SHE-M
[For M95/M75]
ACCESSORY SHOE
FLASH UNIT
[For M95]
PG0152 6,7
L0151
6-8
13
3
PG7001 56
PG8001 56
+B_HOTSHOE
C5V_CAM 43, 80
C5V
IC6101 MIC AMP
L6101
IC8001 3.4V REG
PG8003 21
3, 4
9
11
16
LCD UNIT
BL8001
BL8003
C8.5V 39
C1.5V 32
IC5001 USB2.0 CONTROLLER
BL5002
BL5001
[For M95/M75/M55]
C3V_SYS 58
C3V_SP 51
PG8011 4
OPERATION BUTTON (L COVER)
IC6301 AV AMP
L6305
L6302
L6306
L6301
L6303
61
32
2
22, 30
34
7 C3V_SYS
15 +B_HOTSHOE
16 +B_HOTSHOE
18 C3V_CAM
PG8002 For ADJUSTMENT
4 VDD
PG8061 CARD INSERTION BLOCK
IC6201 AUDIO DAC
R6205 15
13, 14
17
BL6201
BL6202
PG6001 3
PG1801 3
IC1801 REMOTE CONT. RECEIVER
R1814 2
FRT-H/FRT-M/FRT-L
47
C3V_CAM
IC3701 2.5V REG
PG3701 1
7, 8
18
L3702
L3701
EVF UNIT
MAN
GSL-H/GSL-M/GSL-L
PG2001 5
PG1001 5
PG1301 10
29
LENS UNIT
C3V_CAM
42
C-7V
15
C8.5V
[For M95]
6, 8
7, 12
R1007
CCD IMAGE SENSOR
IC1001
[For M75/M55/M53]
14
R1003 7
CCD IMAGE SENSOR
IC1001


[For M95]
IC1001
CCD IMAGE SENSOR
Q1002 BUF
Q1001 BUF
PG1001
PG2001
TL2001 (CCD-OUT1)
IC2003
CDS/AGC & A/D CONV
IC2002
CDS/AGC & A/D CONV
AD2[0-11]
AD1[0-11]
ADCK, PBLK, OBP, SP1, SP2
CS_CDS, SDO_1, SCK_1
H1, H2, HL, RG, V1-V4
TL2009(V3)
TL2010(V4)
TL2012(V2)
TL2013(V1)
IC2004
SENSOR V-DRIVER
IC2001
SENSOR H-DRIVER
XV1-4, XSG1-2
H1, H2, RG
TL2002(RG)
TL2004(H2)
TL2005(H1)
TL2006(HL)
[For M95]
[For M75/M55/M53]
GSL-H/GSL-M/GSL-L
IC1401
V_MODE
IC1402
H_MODE
IC1403
GYRO DET
MAN
IC2006
(CAMERA DSP, CAMERA CONTROL)
IC4003 SDRAM
IC4004 SDRAM
IC4005 FLASH MEMORY
IC4002
(SYSTEM CONTROL, MPEG CODEC)
IC2005 EEPROM
SDI_TC, SDO_TC/ SDO_ SCK_TC, CS_EE_TC
ZOOM_SW
PG7001
PG8001
EXT_CIN
Y_OUT
C_OUT
Q2000 BUF
Q2001 BUF
R_OUT, G_OUT, B_OUT
RD, SD
SHOE_DATA, SHOE_SCLK
STB_ON
IC6301 AV AMP
LPF
[For M95/M75/M55]
EXT_YIN
IC6021 EXT INPUT SW
EXT_AUD(L/R)IN
Q6028 BUF
S(Y)
S(C)
VIDEO
AUD(L/R)
DATA+/-
EXT YIN
EXT VIDEO IN
Q6001L/R Q6002L/R EXT MIC AMP
EMIC (L/R)
Q6027 BUF
AVJ-H/AVJ-M/AVJ-L
JK1901
AV INPUT/ OUTPUT JACK
JK1903
PC CONNECTION TERMINAL
JK1902
EXTERNAL MICROPHONE JACK
SPEAKER
IC6201 AUDIO DAC
D/A CONV.
A/D CONV.
ADATAI, ADATAO
ACK0-2
PADR[1-6], PDAT[0-15], CS_USB
IC5001 USB2.0 CONTROLLER
P_SDO, P_SCLK, CS_AUD
P_SDO, P_SCLK, CS_LCD, CS_EVF, CS_AUD
AEL
IC6101 MIC AMP
TL8030 (LCD-G)
R_OUT, G_OUT, B_OUT
P_SDO, P_SCLK, CS_LCD
LCD_ROUT, LCD_GOUT, LCD_BOUT
LCD UNIT
HDD
EVF UNIT
P_SDO, P_SCLK, CS_EVF
J7001
BACK-UP LITHIUM BATTERY
STEREO MICROPHONE
LD1802 RECORDING INDICATOR
Q1802, Q1803 BUF
PD1801 WB IR RECEIVER
IC1801 REMOTE CONT. RECEIVER
FRT-H/ FRT-M/ FRT-L
WR_IR
REM_IN
PG8002 For ADJUSTMENT
LCD_HDO
LCD_BOUT
LCD_GOUT
LCD_ROUT
V_I/O
RD
SD
RXDA
TXDA
PG8061 CARD INSERTION BLOCK
CD/DAT3
CMD
CLK
DAT0
DAT1
DAT2
WRITE PSW
CARD-D-S
LD8061 CARD ACCES.
MCDX, MWP, MCLK, MCMD, MDAT0-3
MENU, SELECT, KEY1, KEY2
TL8002(MENU)
TL8003(SELECT)
TL8004(KEY1)
TL8006(KEY2)
OPERATION BUTTON (L COVER)
ACCESSORY SHOE
FLASH UNIT
[For M95]
[For M95/M75]
SHE-H/ SHE-M
IC4006 REAL TIME CLOCK
REGON1
RXDA, TXDA
MENU, SELECT, KEY1, KEY2
STB_OSCI, STB_RDY STB_FANA
SW8001 RESET BUTTON
RESET_SW
B/U3V
TALLY_LED
SD_LED
IC0501 PWM
IC0502 PWM
TL0508 (REG_ON1)
TL7001 (REC_KEY)
TL7010(FOCUS LOCK)
TL7011(SHUTTER)
TL7002 (SD_MODE)
TL7003(MOVIE)
TL7004(STILL)
TL7005 (EJECT_SW)
R7003 (DOOR SW)
DOOR_SW
ACC_LED
PG7004
STILL, MOVIE, SD_MODE
POWER SWITCH
EJECT_SW
DISC EJECT BUTTON
PC_LED
ACCESS LED
ACCESS/PC INDICATOR
FOCUS LOCK, SHUTTER
PHOTO BUTTON
REC_KEY
RECORD BUTTON
ZOOM_SW
ZOOM LEVER
IRIS
ZOOM MOTOR
FOCUS MOTOR
IC1301
FOCUS/ ZOOM/ IRIS DRIVER
CS_LENS, SDO_1, SCK_1
HALF_FV, IRIS_OPEN, SHUT_CTRL, LENSCK
ZMT1-4
FMT1-4
ALCMAIN+/-
HALL_OUT+/-
HALL_IN+/-
HALL_ADJ0
HALL_ADJ1
IC1302 F DET
IC1303 F DET
SW Q1303
HALL_G
REFO
[For M95/M75]
IC1306 ND DRIVER
Q1306 CURRENT CONT
IC1305 ND DRIVER
IC1307 ND DRIVER
IC1308 DAC
ND_HALL_OUT-
ND_HALL_IN+
ND_HALL_IN-
ND_HALL_OUT+
ND_DRIVE+
ND_DRIVE-
ND_DET
ND_PWM
CS_DAC, SDO_1, SCK_1
LENS UNIT
DISC
SPINDLE MOTOR
AF
TR
SLIDER MOTOR
LD9001 LASER
IC9002 LASER DRIVE
IC9001 LASER DET
IC9003 FRONT MONITOR DET
IC9005 PHOTO SENSOR
IC9101 ANAROG FRONT END
IC9103 LED DRIVE/ PHOTO DET
IC9301 MOTOR ACUTUATOR DRIVE
HDL5
DRV
IC9501 DRIVE DSP
IC9703 FLASH ROM
IC9702 EEPROM
SWITCH OF LOCK UNIT
DRF-H/ DRF-M/ DRF-L
PG9001
PG9101
PG9501
PG2302
PG2301
PG7002
PG9302
PG9301
DISC DRIVE UNIT
: REC VIDEO
: PB VIDEO
: REC/PB VIDEO
: EXTERNAL INPUT